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ABSTRACT

This report on the 1985 Asian and South Pacific Regional Conference of the World Confederation of Organizations of the Teaching Profession (WCOTP) presents the full text of three addresses presented during the opening ceremony, as well as four major presentations by invited speakers and three addresses from the closing ceremony. A day of discussion was devoted to each of the themes presented by the invited speakers, and rapporteurs for each day formed a committee to produce a final recommendation. The four theme presentations were: (1) "Changes in the Nature of Work and Leisure: Their Effects on the Goals of Education" (L. H. Horace Perera, Switzerland); (2) "Technology in Teaching and Learning: Changes in the Role of the Teacher and in the Skills Required by Teachers" (Se-Ho Shin, South Korea); (3) "Technology and the Status of Women: New Challenges for Education" (Edna Tait, New Zealand); and (4) "Effects on the Goals and Activities of Teacher Organisations" (Edna Tait, New Zealand; Kiyoo Nakakoji, Japan; and Shin-Bok Kim, South Korea). Resolutions on the theme of the conference are presented in the final chapter, and five appendices contain the conference program, a questionnaire on the theme, points for discussion based on responses to the questionnaire, four non-theme resolutions, and a list of participants. (MES)

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REPORT OF THE

TENTH WCOTP ASIAN AND SOUTH PACIFIC REGIONAL CONFERENCE

7 to 13 AUGUST 1985

SEOUL

REPUBLIC OF KOREA

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PREFACE

Technology, by increasing the power of human communities to act upon the natural environment, has been the key, through all the ages, to civilisation and social development. Since the invention of the first stone axe, human progress has been measured by the advances made in devising artificial ways to extend human powers, and in the ability to measure the effects produced.

Because technology determined the extent to which people could adapt to, or eventually modify, the natural environment, it also determined the way in which human settlements developed. The ability to measure, to communicate, to travel, to kill, to heal, to build and to destroy has shaped people's ideas about their relations with each other, their own roles, their essential interests and their aspirations. It has moulded their opinions about what is good and what is bad, what is beautiful and what is ugly, what is valuable and what is worthless.

These ideas have been consolidated and communicated from generation to generation by families and communities, often through a slow and immensely powerful informal process, involving the construction of codes of behaviour, mythologies, philosophies, and consensus about what kind of knowledge was good and what kinds of skills were to be valued. Over the centuries, this process has also been formulated in education systems, which have developed specialised ways of transmitting the social consensus and training young people for the roles which that consensus identified.

During the last two hundred years, however, the pace of advance in mechanical, chemical and, latterly, electronic and biological technology has been quickening exponentially. Technical advances resulting from discoveries within countries and cultures, or abruptly introduced through contacts between different cultures and countries, have demanded that social and cultural adaptation take place with a rapidity that the informal processes of society could not attain, and which strained the capacity of the formal education systems to adapt and respond.

It is evident that the nature of all kinds of work is being profoundly affected. What is perhaps equally important in the challenge it presents to education, and has not been given the attention that it should have, is the emergence in the 20th century of a vast industry based on the technology of entertainment - a powerful instrument in the cultural and moral education (or miseducation) of the young.

The acceleration continues, and has produced a condition of crisis. The power now in the hands of humankind extends to the ability to put an end to the history of the species. Short of that calamity, radical transformation of the physical environment and of the social and economic order could produce widespread suffering and irreversible damage. The constructive possibilities now emerging are equally great, though harder to envisage.

The enormity of the threat, and of the promise, raises questions about the control of technology and of the uses to which it will be put, questions of fundamental social and political importance. The institutions of education obviously cannot find the answers, but must take account of the needs of people to understand the issues and of their obligation to develop the intellectual skills and ethical sensibilities through which answers must be sought.

In the meantime, schools will still be expected to prepare young people to manage their lives as workers, citizens, parents, on the job and in their leisure time, as well as preserving and enriching the cultural and aesthetic traditions of their communities. They will be expected to provide such preparation to the whole range of their pupils, giving to each, as far as possible, an equal opportunity to achieve competence.

To speak of the obligations of schools is, of course, to speak of the obligations of teachers and of the changes that may be desirable in the process of teaching.

These considerations set the theme of the Tenth WCOTP Asian and South Pacific Regional Conference, held in Seoul from August 7 to 13, 1985.

In the light of the acceleration of technological development to critical levels, what can be said about the ways in which work and leisure are being transformed, thus changing the nature of the preparation that the school must provide for entry into adult life? Can the school find, within the new technologies, new methods and techniques to make its educational efforts more powerful and more effective? Bearing in mind the need to ensure equity and equality, what can we surmise about the effects of technological change upon that most stubborn of all inequalities -- the persistent disadvantage suffered by girls and women? What counter-measures can the schools take?

In all of this, what should be the specific concerns, and priorities for action, of the organisations of the teaching profession?

To each of these four themes, a day of discussion was devoted, based on opening statements by invited speakers. Rapporteurs for each day formed a committee to produce a final recommendation.

Opportunity is taken here to endorse and emphasize the thanks expressed by WCOTP President Jim Killeen, in his closing remarks (printed in this report), to the many individuals and organisations whose skills, hard work and financial generosity contributed to the success of the Conference, and in particular to the host organisation, the Korean Federation of Education Associations. The gracious and generous hospitality provided in Seoul will be long and warmly remembered by the participants.

CHAPTER I

OPENING CEREMONY

ADDRESS OF WELCOME

Il-Kyong Park, President, KFEA

P President Killeen, distinguished members of the World Confederation of Organizations of the Teaching Profession, Minister of Education Jae-Souk Sohn, honourable guests from home and abroad including distinguished representatives from the Asian and South Pacific regional organisations of the WCOTP, and our colleague educators representing the educational circles of Korea.

On this happy occasion of the Tenth WCOTP Asian and South Pacific Regional Conference which my country has the honour of hosting here in Seoul, I would like to extend my warm and sincere welcome to the distinguished delegates who have come a long way from many parts of Asia and the Pacific region to attend this conference.

The Korean Federation of Education Associations which was established in November 1947 as the only organisation for those in the teaching profession in Korea, has grown to the present scale of having 240,000 members, making a tremendous contribution to the promotion of social and economic status of teachers and enhancement of teachers' rights and interests.

Internationally, we have maintained close cooperative ties with WCOTP since we took part as a founding member in the inaugural assembly of WCOTP held in Copenhagen, Denmark, in August 1952. Our relationship with WCOTP was significantly strengthened when we hosted the 15th Assembly of Delegates back in 1966 and a WCOTP Asian Seminar and Council in 1976. Since the founding of WCOTP, our delegates have actively participated in Assembly of Delegates of the organisations.

As you know well, our country, located on a peninsula in Northeast Asia, takes pride in its long history spanning over almost 5,000 years. We, peace-loving people, have maintained an affluent heritage of traditional arts and a unique culture with a national character of respect for education which have served as the driving impetus in our national development.

Especially, the nation's 300,000 educators across the nation have made self-sacrificing efforts to achieve national modernization over the course of the past four decades since the national liberation from Japanese colonial rule on the basis of great national enthusiasm for education. As a result, our status in the international community has grown strong enough to host the 1986 Asian Games and the World athletic festival, the 1988 Summer Olympics.

My fellow educators from home and abroad!
Since the end of World War II, science and technology have made startling progress. This remarkable advancement of science and technology calls for continuous renovation in the educational field, requiring new objectives and revised methods of education as well as modifications in the structure of educational curricula.

Accordingly, it is needless to say that to achieve educational development, which is recognized as the most instrumental means to realize world peace and national progress, there is an urgent need for continuous international exchange of information and technology based on mutual understanding and cooperation.

In this regard, it is both very timely and appropriate that educators of the Asian and South Pacific region are gathered here to have sincere discussions on the theme of "Education and the New Technologies" and I expect our conference will prove to be very productive in meeting the demands of the times.

Distinguished delegates from the Asian and Pacific regional organisations!

Today many scholars forecast that the 2000s will bring forth the Pacific Era.

Being endowed with abundant natural and human resources, the Asian and the South Pacific region is surely an area of great potentiality. Therefore, I am firmly convinced that we can advance to the day when our member nations in Asia and the Pacific play a leading role in writing a new chapter of world history, so long as we continue our mutual harmonious cooperation with keen awareness of the necessity of educational development.

It is my sincere hope that our meeting here in Korea will set a milestone in educational development and in the enhancement of interest of the member nations in Asia and the Pacific. To this end, I earnestly expect that you will pool your best efforts to strengthen mutual cooperation among members of WCOTP.

At the same time, I wish that your stay in our country, though short, will be a most enjoyable and rewarding one. And again my deep thanks go to the distinguished staff of WCOTP headquarters and to all others who have rendered their unsparing help to make this conference successful.

In closing, I wish all of you and your families constant happiness and well-being.

Thank you.

OPENING ADDRESS

James W. Killeen, President, WCOTP

President Park, Honourable Minister of Education, distinguished guests and colleagues,

It is a great pleasure for a President of WCOTP to attend a conference in this country, which so happily combines natural beauty and an ancient tradition of scholarship. The records of our Confederation bear witness to the warmth of the hospitality shown to those who attended the WCOTP Assembly of 1966 and the Asian Regional Conference of 1976, and the hard work and generous assistance which the KFEA has contributed to the preparations for this 1985 Conference give renewed proof of loyalty to the world organisation which Korean educators helped to found in 1952.

In this series of conferences, held in turn in cities in every part of the vast Asian region of WCOTP we have sought to look ahead at the challenges facing the countries of the region, to define the tasks which educators will have to undertake, to establish a clear picture of the responsibilities which will rest upon teachers, and to determine the kinds of resources, and the condition of work, which must be provided. We hope that by doing so we can help our member organisations to clarify their own goals, within their own countries, with regard to educational policy and the status of teachers.

This is a very necessary activity. In the same year that the WCOTP Assembly was held here at Walker Hill, a special intergovernmental conference in Paris adopted a Unesco-ILO (International Labour Organisation) Recommendation calling on governments to involve teacher organisations in the preparation of educational policies and to recognize their right to share in determining the conditions of work of teachers. WCOTP played a large part in preparing the Recommendation, and works constantly to bring about its implementation in all countries.

Besides, we recognize that it is a matter of obvious fact and simple common sense that no reforms in education can succeed without the active collaboration of a well-informed teaching force, and such collaboration must begin at the level of the discussion of goals, priorities and policies.

Effective participation in the discussion of educational policies and teacher policies places a heavy responsibility on the organisations of the profession. We hope that these international consultations, and the reports that emerge from them, will help our members in their exercise of these responsibilities.

For our own part, we have found these regional conferences very valuable in our work at the international level. The ideas generated in discussions here will greatly influence our consultative role with Unesco, the International Bureau of Education, the International Labour Organisation and the Economic and Social Council of the United Nations.

There is no doubt that the enormously rapid development of technology will compel a profound reassessment of the goals of education, involving new thinking about the nature of the teacher's work, the initial and in-service education and re-education of teachers, the organisation of schools and the place of school in society. Teacher organisations face an enormous task in preparing their own policies in this regard.

There is a danger that we may pay too much attention to the more superficial, more glamorous aspects of the topic of technology. We are swamped with articles about computers in the school, and this has two unfortunate effects. On the one hand, we get involved in discussions about how to train people to operate today's computers - a relatively simple skill which will be obsolete in a very short time. On the other hand, regions and countries which are not yet able to place computers in schools feel that the topic of technology does not concern them. That is a grave mistake.

It is important to emphasize two facts.

One is that the small portable computer is only one symptom of an enormous worldwide revolution in the ways of doing things - ways of manufacturing, ways of communicating, ways of growing food, ways of occupying leisure. If schools are to continue to be of use in teaching people how to do things, educators must understand the nature and the extent of the technological revolution, educational policy-makers must decide what skills the school must teach, and we must all work together to solve the problem of how these skills can be taught.

The second is that technology does much more than change our ways of doing things. It changes our knowledge. It changes our ideas. It gives us far greater power, and forces us to make choices about what to do with our power. It raises questions about values, morality and philosophy. And these are matters which lie at the heart of the problem of educating young people.

Think of the technology of the automobile and how that has caused the shift of population from the country to the cities, with practical problems of pollution and crowding, and a profound change in lifestyles, family structures and ways of thinking.

Think of the technologies of motion pictures, radio, television, and how they have affected the outlook and the ideas of young people, invading and changing the responsibilities of parents and teachers, influencing ideas about history, geography, war and peace, the arts, social organisation and personal behaviour.

No parent, no teacher in the world has not been affected by the problems created by technological change in the past. Can we confidently say that education has responded with complete success to the new needs that have appeared?

No parent, no teacher in the world will remain unaffected by the enormous changes which the next decades will bring. We must do our utmost to understand what will be asked of the school and how we can best respond.

Obviously that is not the end of the story. As teachers, we are concerned about the world in which young people will be living in the future, and anxious that the school give them the knowledge, the understanding and the skills that they will need. But teachers, also, require knowledge, understanding and skill. Technology in the past has contributed very little to the processes of teaching and learning. Will the new technologies of information and communication change that situation? Are new devices coming into existence that will extend the abilities of the teacher to the same extent that they are already increasing the power of the engineer, the scientist, the manager?. If so, we must not lose any time in assessing the possibilities, exploring new methodologies, and finding out what new skills teachers will have to acquire to make full use of new opportunities. Equally, we must be on guard against false promises and against the danger that premature decisions by ill-informed authorities or pressures from commercial interests pursuing selfish purpose, may damage the educational situation and the position of the teacher.

Whatever the benefits of technological progress, we must insist on making them equally available to all. Meeting as we are one month after the United Nations Conference to Review the Decade for Women, we must be especially conscious of the need to put an end to one of the most persistent and pervasive of all forms of discrimination, that which affects girls and women in the field of education. New technologies must be used to ensure equality, not to reinforce discrimination and disadvantage.

These are the topics of our Conference. WCOTP, with its eight million members in 96 countries, is acutely aware of its responsibility not onl to the teachers in its ranks but to all of society. This Conference is an important instrument in the exercise of that responsibility. I warmly thank the KFEA and the Government of Korea for their assistance in making it possible, and offer my best wishes for a successful outcome.

CONGRATULATORY ADDRESS

Jae-Souk Sohn
the Hon. Minister of Education

President James W. Killeen of the WCOTP, representatives from the Asian and South Pacific Regional organisations, my fellow educators, and distinguished guests,

It is an honour and a pleasure to deliver a congratulatory address, on behalf of the Government of the Republic of Korea, at the Tenth WCOTP Asian and South Pacific Regional Conference opening today here in Seoul.

At the outset, I would like to extend my warmest welcome and deep gratitude to all the delegates who have come to this meaningful gathering of educators to share information and d jointly seek ways to cooperate with each other for the promotion of educational development.

Since the WCOTP was created back in 1952 in Copenhagen, Denmark, it has grown today to be the world's largest confederation of the teaching profession with as many as 8 million members in 96 nations.

I would like to take this opportunity to pay the highest tribute to the distinguished staff of the WCOTP headquarters and the delegates for their enormous endeavours to achieve the remarkable growth of the WCOTP up to now.

As you are well aware, education serves not only as the foundation for the realization of human ideals, but as the driving force for national development. For that reason, every nation today is exerting its utmost efforts to upgrade the edu-educational level designed for its national development. The Republic of Korea, though poor in natural resources, has made tremendous development in education, thanks to the national enthusiasm for education and the sacrificial services of the educators. I believe our country has been greatly successful in fostering people with good potential.

On the basis of the achievements so far, the Government has established the Council of Educational Reforms under the direct control of the President aiming at reforms to enhance educational standards. The Council will analyse and review the current status of our education and collect the wisdom and the ideas from people of every walk of life, thus seeking to establish an educational system and policy most appropriate to our social conditions.

Honourable educators,

It is my belief that education is a process of building up knowledge and personality with teachers taking the initiative. The success of education depends, in my opinion, on the ability and the morale of educators. Therefore, the importance of the role of the educators and their organisations can never be over-emphasized, if our educational task is to be effectively achieved.

In order to make competent educators exert themselves to educational activities with a strong sense of mission, our Government has set up a system separately for training teachers in addition to various policies to treat teachers in a preferential manner. On the other hand, we provide active support for teachers' organisations such as the Korean Federation of Education Associations to upgrade the prestige of the teaching profession and the morale of the teachers.

The KFEA has actively participated in establishing educational policies. It proclaimed the Teachers' Charter so as to heighten the ethical standard of educators. It has taken the lead in creating social conditions to respect educators through such annual events as Teachers' Day. Though there is room for improvement, I feel that our experiences could be shared with other countries.

Distinguished educators,

Today, we live in a rapidly changing society and education has to cope actively with this change. Besides, modern society requires mutual understanding and cooperation more and more every day. At this juncture, I think it very timely and

meaningful that experts on education from the Asian and the Pacific region sit together and broadly exchange ideas on the subject "Education and the New Technologies".

I am convinced that the fruitful result of this conference will greatly contribute to expediting the educational development of your countries in particular, and the Asian and Pacific region in general. It is my ardent hope that this conference will turn out to be a valuable occasion where all of your plentiful experiences and educational information will be freely exchanged in a most friendly atmosphere, thus enhancing our friendship.

And I also hope you will take time out to visit as many places as possible during your stay here in Korea so that you may have a deeper understanding of Korea.

Finally, I would like to extend my heartfelt thanks to President Il-Kyong Park and the staff of the KFEA and the WCOTP for their unsparing efforts to make this conference possible. In closing, I wish that your stay in Korea will be a most pleasant and rewarding one. Thank you.

CHAPTER II

CHANGES IN THE NATURE OF WORK AND LEISURE : THEIR EFFECTS ON THE GOALS OF EDUCATION

L.H. Horace Perera
Former Special Assistant for
Asia and the South Pacific, WCOTP

PART I - THE NEW TECHNOLOGICAL SOCIETY

I. TWO MOST SIGNIFICANT POINTS IN HUMAN HISTORY

1. The Neolithic Agricultural Revolution
2. The Industrial Revolution.

II. ACTUALLY THREE SEPARATE REVOLUTIONS*

1. The Steam Revolution
2. The Electric Revolution
3. The Atomic Revolution.

III. TO A POST-SERVICE SOCIETY

The Industrial Revolutions resulted in changes in employments which in their train brought about changes in society. Briefly stated these are as follows:

1. In the Pre-Industrial Era the majority of people were employed in agriculture. Consequently society in that period can rightly be referred to as an *Agricultural Society*.

2. The First Two Industrial Revolutions resulted in large numbers of people in the countries affected being employed in manufacturing and mining which was replacing agriculture as the major employer. The society which evolved has been referred to as a *Manufacturing and Mining Society*.

3. The Third Industrial Revolution witnessed a transition to a "service" economy and consequently to a *Service Society* in that far more workers were employed in performing services than in manufacturing and mining. Among the services which emerged were : selling, teaching, banking, insurance, fuel

* *Sleepers, Wake! Technology and the Future of Work* - Barry Jones

supply, storage, retailing, administration, media, general office work etc. These are collectively referred to as *Post Industrial Service Occupations*.

4. With the introduction and the increased use, since 1970, of Miniaturized, Sophisticated, Low Cost Computerized Operations (the New Technology) there has been a rapid fall in Post Industrial Service Occupations and the emergence of what Barry Jones has called a *Post-Service Society* as various services which required a large labour force (e.g. Banking) came to be "produced" by electronic systems with fewer workers.

IV. ELEMENTS RELATING TO THE ADOPTION OF NEW TECHNOLOGY

1. *Costs* - The price of each unit of performance in microtechnology is today (1985) 100,000 times cheaper than in 1960. The indications are that prices will tend to fall with the development of more sophisticated low cost operations.

2. *Range, Capacity, Reliability* - Microchips have increased their capacity 10,000 times between 1971 and 1980: they can be directed to cut cloth, stamp out metal, plan a school syllabus etc.: they can work 24 hours a day under any climatic conditions.

3. *Transitions* - Precision instruments (cash registers, wristlet watches etc.), the making and servicing of which required a large labour force are now produced by electronic systems with fewer workers.

4. *Speed of Dissemination* - The steam-powered cotton mill was introduced into the USA 63 years after its adoption in Great Britain. Today computerized operations have spread throughout the world in about 5 years.

5. *Speed of Operation* - Information can now be disseminated throughout the world in microseconds.

6. *Internationalization of Economies* - All economies are interdependent. This has led, among other things, to an international division of labour and the growth of multinationals.

7. *Smart Machines* - New technology does not merely extend or replace physical capacity. Computers can be programmed to parallel human mental processes.

8. *Destructive Capacity* - Human beings have now the technical capacity to destroy all life on this planet.

9. *Decline of Ideology* - Few politicians understand what is going on in technologically sensitive areas. Hence the tendency for governments to be dominated by bureaucrats and technicians.

10. *Population* - Efforts to reduce birth rates in rich countries have been successful. The population explosion still continues in most of the third world.

11. *Resources* - Growing anxiety about the depletion of resources.

12. *Transference* - In the First and Second Industrial Revolutions when some form of employment declined new forms grew generally in the same areas (e.g. the horse-driven carriage gave way to the manufacture of motorcars and a series of auxiliary services. Today with the international division of labour a decline in the watch industry in Switzerland can be followed by a rise in the same industry in Japan or the Republic of Korea.)

13. *Labour Displacement* - In the past, machines were labour complementing. New low cost technology is labour displacing.

14. *Demands for Goods and Employment* - Employment levels in the past generally increased with an increase in the demands for goods. Today increased demand tends to an increase in the use of new technologies and thus tends to displace labour. This is illustrated by the three examples outlined below.

    * The sale of petrol doubled in Australia between 1970 and 1977 but the employment of garage pump attendants fell by 40 percent.

    * In the ANZ Bank (Victoria) 480 personnel retired in 1978 to be replaced in 1979 by only 200 new employees.

    * Production of colour television in Japan increased from 8.4 million in 1972 to 10.5 million (an increase of 25 percent) in 1976. During the same period the number of employees making them fell from 47,886 to 25,677 (a fall of 40 percent).

V. TECHNOLOGICAL UNEMPLOYMENT

1. *The Nora Report*

Many governments commissioned reports on the impact of computerized operations on employment. The most serious of these was the investigation commissioned by the then President of France, Giscard d'Estaing. In a report, generally called the "Nora Report" (1978), the situation was examined in "five

dissimilar functions" - banks, insurance, social security, postal services and office work. The conclusion was that despite the differences "within the next ten years computerization will result in considerable manpower reductions in large service organisations".

2. *The Siemans Report*

An investigation by Siemans A.G. of West Germany reached identical conclusions.

3. *A British White Paper*

This White Paper stated (1977) that the number of staff actually engaged in computer work was about 14,000 and the number "freed" by computers was several times that figure.

VI. LOW UNEMPLOYMENT IN SOME COUNTRIES

In capitalist countries 3 percent unemployment, or less, is generally considered full employment.* To have 100 percent employment would be "over full".

According to Dr. Barry Hughes** "Sweden, Japan and Austria have been notably successful in resisting the international recession ... Full employment is alive and well" in these countries. The following are among the reasons given.

- *A large labour force* in agriculture (Sweden and Japan)
- *Shorter working week* (Sweden 30.2 hours; Austria 34.4 hours)
- *Retirement age 55* (Japan)
- *Creation of new occupations* (Sweden has a large proportion of people employed in welfare services; Austria has a flourishing tourist trade involving a large labour force.)
- *Industrial democracy* (Sweden and Austria)
  This means amicable relations and regular consultations between Government, Employers and Workers' Unions (see section VII (4) "Monitoring Technology").

VII. IS THERE A CHOICE?

There certainly are choices; some of these are listed below.

* *John Maynard Keynes and William Beveridge*

** *"Exit Full Employment"*

1. *Small is Beautiful*

Joseph Schumacher has urged what he calls "Buddhist Economics" - that is low technology and high employment techniques : smaller labour-intensive industries serving regional needs instead of large scale capital-intensive firms aimed at large markets. For example a hundred small bakeries, one in each district, instead of one mammoth industry supplying the whole region. Many large corporations now concede that greater social and economic efficiency can result from breaking down manufacturing into smaller units.

2. *Light Capital Technology*

It has been proved that light capital technology will not necessarily reduce production. On the other hand it can result in more employment and less energy consumption.

3. *New Ideas for New Products*

Existing tools and skills can be used to manufacture new products. The process can be labour absorbing and energy saving.

4. *Monitoring Technology*

Workers' Unions and Employers can cooperate in monitoring technology and thus preventing, or at least reducing, labour force redundancy while, at the same time, ensuring reasonable returns to capital, land and management. This has been tried successfully in Sweden, Norway and, to some extent, in Germany, Federal Republic of.

5. *Appropriate Technology*

This is particularly relevant in the developing countries whose economic base is largely agriculture. Compare the "agricultural revolution" in Mexico which, as a result of the introduction of new technologies, has resulted in about 3,000 displaced peasants (campesinos) streaming daily into Mexico City with the pragmatic approach of the Peoples' Republic of China in making maximum use of its vast resources of human energy in industries and in major construction works. What the Mexican agriculture needed was not new technologies but an intensive education programme designed to induce the campesinos to abandon their *"mañana"* syndrome and to give priority to work with second place to their *siesta* and *fiesta*.

VIII. TRANSFER OF TECHNOLOGY

There have been two basic models of acquiring technology from the country of origin. These are

the National Model
the Colonial Model.

1. *The National Model*

The USA, Japan, Sweden, Switzerland and Germany adopted the national model. They either imported technology from the country of origin , or acquired licenses to use the technology they needed, but ensured that ownership was in their hands (that is of the importing country). They did not invite foreign corporations to set up and manage industrial plants in their countries. As a result they are today exporters of technology in their own right.

2. *The Colonial Model*

Countries in Africa, Asia and Latin America, the Caribbean islands and the countries in the South Pacific have had to adopt the colonial model. They had no alternative. The technology they were keen on getting was developed abroad and imported to their countries with foreign experts whose function was to control its local manufacture and development.

Many criticisms have been made on this method of acquiring technology. Among them are the following:

(a) The value of importing high level technologies is being increasingly questioned in terms of "labour-intensive" philosophies and "appropriate technology" applications, particularly as far as the smaller countries are concerned.

(b) Technology has to be enticed into many less developed countries with the offer of exceptionally favourable conditions, such as exemptions from duties and taxes and from various other related charges.

(c) Royalty payments and payments for technical know-how by the business sector can be very high and, as they have to be paid overseas, can be a considerable drain on the meagre hard currency reserves of small developing countries.

(d) Many bilateral technical cooperation contracts do not contain a requirement to train nationals to shoulder responsibility so that they can eventually take over from the foreign technical staff.

(e) Where provision is made for such training there is no assurance that the locals who are trained will be given positions of responsibility in these enterprises.

(f) Multinational Corporations which have introduced new technology to less developed countries have been known to be strong enough to pressurize local governments to reorganize their educational systems to meet the requirements of the needs of the Corporations for junior executives and semi-skilled workers.

(h) Congressman Clarence D. Long has accused industrial circles in the USA of sending to third world countries much high technology which reflects the technological determinism of the donors, rather than the needs of the recipients.

(i) Small countries needing new high level technology are not in a strong position to secure the most favourable terms from powerful multinationals.

(j) While granting that the importing countries do derive some benefits, consideration should be given to the view that resorting to the colonial model for acquiring technology has resulted in the emergence of the "new empires" of the multinationals.

IX. CONCLUSION

High level technology has come to stay. Its introduction and use have to be carefully thought out and planned in view of the "violence" it can cause to employment, the environment and society. Countries do not have to import it lock, stock and barrel. A number of options have been outlined ranging from "appropriate technology" to "monitoring high technology". The import of the new technologies and/or the adoption of one or more of the options will have an impact on work and leisure and significant implications for education. These will be examined in Parts II and III.

PART II - TECHNOLOGY AND LEISURE

I. INTRODUCTION

1. According to the Oxford Dictionary "leisure is time free from work". This definition carries with it the implication that one cannot have leisure unless one has work. The unemployed have no work and therefore cannot have leisure. They

have idleness either self-imposed, or imposed on them by circumstances.

2. The evidence is that human beings had leisure from very early times. The cave paintings discovered in Altamira and other places in the Santandar province in Spain belong to the Paleolithic (Old Stone) Age. They are of vast antiquity and were the work of Old Stone Age people when they had time free from such occupations as are usually associated with their way of life.

3. More sophisticated and organized uses of leisure developed later in Periclean Athens and in Imperial Rome and it is customary to refer to these eras as the "Golden Ages of Leisure".

4. There were other such "Golden Ages" in the ancient civilizations of China, India, Egypt, Mexico, Peru etc. and much later in some states in Renaissance Italy, in England and the Netherlands in much of the Eighteenth Century, and in the France of Louis XIV.

II. IMPACT OF FIRST TWO INDUSTRIAL REVOLUTIONS

In the period of these two revolutions it can be said that the labour force hardly had any leisure. Men, women and children (even those under ten*) worked long hours in ill-lit factories and mines, at tasks which had no variety. They are said to have never seen the sunlight at work. In the late evenings they returned to their homes exhausted, had their "dinner" and retired to sleep only to get up early to carry on their long hours of work and their degrading and wretchedly paid jobs. A new class of citizens developed, the industrial proletariat, which led to the slow development of trade unions and collective action by the labour force to secure for themselves more humane conditions of work. The movement gained momentum in the nineteenth century and with the development of

NOTE

In the instances mentioned in paragraphs 3 and 4 above, small relatively leisured classes enjoyed a rich and varied cultural life supported by members of a large servile class who performed all the routine work. It was generally so in most of Europe in the Middle Ages and up to the First Industrial Revolution.

* *In 1842 Parliament prohibited the employment of children under ten in the mines.*

"Post-Industrial Service Occupations" and the emergence of the "Service-Society" there was, among other developments, a slow but steady trend to "shorter working weeks".

III. SHORTER HOURS OF WORK, PAID HOLIDAYS

By 1940 the "Forty-hour week" more or less became the norm in the industrialized West. To this came to be added "paid holidays". The European Economic Community has set a target for four weeks' paid holidays. President Mitterand introduced five weeks' annual paid leave in France in 1981. While the other members of the EEC also have annual paid holidays (ranging from two to three weeks) they have still to reach the target.

An interesting development occurred in Great Britain in the winter of 1973/74. In the face of a shortage of fuel and a crippling coal strike the government of Edward Heath considered it necessary to impose a three-day working week. Fears were expressed in certain political and economic circles that production would fall. Output did fall slightly but in some factories significant increases were noticed. This naturally raised the question: "If the demand for goods and services can be met by three days, why work five?" About the same time the American Confederation of Labour, in an effort to solve the problem of labour displacement, argued that for effective "job-creation" the working week would have to be reduced to 24 hours : in effect, with an eight-hour day, this would have meant three working days a week. The Australian Bank Employees have been campaigning for a 30-hour week. Trade Unions in some other countries are carrying out similar programmes. We have seen that in Sweden the working week is 30.2 hours and in Austria it is 34.4 hours. This means, of course, considerable "time free from work". How are people going to use this expanded leisure. People who know are not forgetful of Shakespeare's famous statement "If all the year were playing holidays to play would be as tedious as to work". Hence human beings have come to be faced with the problem of the use they can make of this leisure. Before considering this it will be necessary to examine another development which can contribute to a further increase of leisure.

IV. ARISTOTLE'S "PROPHECY"

In considering the elements related to the adoption of the New Technology (vide Section IV of Part I) reference was made to the increased range, capacity and reliability of microtechnology and to the "smart machines" which do not only extend or replace physical capacity but would also do things that would require intelligence if they were to be done by human beings.

In this connection a statement made by Aristotle (384-322 B.C.) can be regarded as "prophetic".

In a Greece which accepted the maxim of "Art for Art's Sake" he considered work an unnecessary interference with a citizen's higher duties, which - in his time - were "the pursuit of truth and virtue, the cultivation of the arts and participation in public affairs". In *Poetics* he considered the possibility of the abolition of slavery but concluded that there is only one condition in which one can "imagine managers not needing subordinates and masters not needing slaves". The condition would be that each instrument could do its own work at a word of command or by intelligent anticipation. Aristotle's contemporaries, and even many scholars of the classics before the 1970s, would have considered his condition farfetched. The fact, however, is that the condition he stipulated - instruments which could do their own work "at a word of command" - has been met by the introduction of high technology. This can spell a further increase of "time free from work" and makes more urgent the solution of a problem facing human beings today : namely how best this leisure can be used.

V. HOW WILL HUMAN BEINGS USE LEISURE?

There is no doubt that with the steady and remorseless advance of technology and with the concomitant trend towards shorter working hours human beings will have more and more "time free from work". What use will they make of this expanding leisure? It is generally agreed that increasing attention will have to be paid to personal involvement in activities such as the following:

the Arts (including music and drama)
Craftwork
Hobbies
Sport
Do it Yourself (DIY) Activities etc.

Activities of this kind are essential if the quality and diversity of life is to be enhanced and personal development and mental health are to be promoted. They will also help to reduce socially costly dependence on welfare, health care and more fortunately on drugs. There is also the additional consideration that some of the activities mentioned have considerable employment potential. This is particularly so of sport : grounds have to be laid and maintained, stadia have to be built, a wide range of sports equipment has to be made, coaches and administrators have to be employed, guardians of law and order have to be increased, etc.

VI. SPORT

In view of the increasing world-wide interest in sport some consideration of it will be appropriate. It may surprise some to learn that, while many governments spend large sums on health services, comparatively miniscule amounts are allocated for sport, physical fitness campaigns and alternative life-styles - more active and less drug dependent. There are of course exceptions such as the socialist countries of Central and Eastern Europe. In his *"Green Paper on Sport and Recreation"* Barry Cohen has drawn attention to the spartakiad programme in the German Democratic Republic which is designed to promote a high level of direct community involvement, not merely as spectators, but also as active participants, in a variety of sport activities: and this not only in urban areas and their suburbs but also in remote rural districts. Programmes of this kind should be planned and organized on a nation-wide scale. Otherwise what worthwhile leisure activities will, for instance, the peasants, fisherman, woodcutters etc. in most Asian countries have? Cultural and other meaningful leisure time activities should also be organized and carried out on a national scale so as to promote the widest possible community involvement. Efforts should be directed, among other things, to stimulating people "to recognize the personal value of time in their lives", to "setting their own patterns of time use and learning, and to seeing leisure as an opportunity to fulfil their own potential".* This is one of the challenges facing education today. It will be reverted to in Part III which follows.

PART III

SOCIAL AND TECHNOLOGICAL INTERACTION WITH EDUCATION

I. EDUCATION'S TWO BROAD FUNCTIONS

Viewed in its most reductionist terms "education" can be said to have two broad functions. The first, sometimes referred to as its *"general function"*, is to provide a cultural service whereby an individual acquires a wide range of social and cultural skills aimed at developing his or her general awareness and creative ability. In one sense this relates to the "universal" aspect of the human being - his or her humanity and developing consciousness.

The second function is to provide the *basic skills* which will be necessary for the individual to undertake appropriate

* *All these are quotations from Barry Jones' "Sleepers, Wake! Technology and the Future of Work".*

employment and also, to a varying degree, to provide more *specific skills* which will enable him or her to follow a particular career or occupation.

Historically, for many nations it has been an important social principle that the "universal" or "general" function should be given priority. The role of education being to socialize and liberalize the individual rather than to feed the needs of industry or commerce. This principle has been seriously eroded and today we can see the main emphasis in terms of vocational planning, particularly in the tertiary education sector. Vocational planning is closely related to technological change and technological change is intimately related to concern with education in several ways. If technology is changing society, education has to change so as to prepare people to live and work in a new type of society and to contribute to its meaningful development.

II. DEVELOPED AND DEVELOPING COUNTRIES

The interaction between technological development and education has of course to be seen in an economic, cultural and temporal context. Hence it is important to note that, at present, the problems and concerns of the developed world are different from those of the developing world.

1. *The developed world*

Concomitant with the changing technological face of society there occurred in most developed countries a substantial increase in the level and provision of "formal education": widespread provision was made for primary and secondary education and there have been significant increases in tertiary education. High technology created a demand for personnel with high IQs, highly educated and trained, and capable of changing the design of products, processes and organisations. Secondary education is seen as a filter through which an "elite" is selected for participation at the tertiary level and less specifically in terms of skill provision for a variety of employments. Primary education is seen as the basis for secondary education or, in most cases, as the minimum education level for all people, particularly the "masses".

2. *The developing world*

The developing countries are confronted with the monumental tasks of :

(a) trying to change their economies from that of raw material suppliers to the industrialized nations to one of self-sufficiency, and

(b) attempting to meet at least the "basic needs" of a population that, in many cases, is increasing rather rapidly.

As far as education is concerned these countries find themselves in somewhat of a quandary as to where their priorities lie. Should, for instance, their limited resources be directed

(a) to the provision of free and compulsory education at the primary level to be gradually extended to the secondary level not only for the intrinsic value of education but also to provide some of the skills needed for development programmes, or

(b) to campaigns for the promotion of literacy and numeracy, not merely for self-development but also for functional purposes such as, for example, to be able to read instructions on the use of fertilizers, or understand the safety regulations displayed in factories or other places of work.* Moreover it has been demonstrated that there is a positive relation between literacy and yield per worker** and that the skills in reading, writing and computation together constitute the basis for the formation and development of other specific skills, or

(c) to the introduction and maintenance of a tertiary sector - which is rather expensive - with a view to producing the scientists, engineers, technologists, administrators etc., necessary for the embryo or developing countries which might serve to generate national wealth.

The view that these three educational sectors are all priority areas and that each should receive adequate attention - the extent of such attention depending on the particular needs of each country - cannot be disputed.

In many of these developing countries the "modern economic sector" occupies only a small percentage of the labour force (it is only 9 percent in India) yet the "formal education" policy was in the past dominated by the perceived needs of this sector. Today the production of skills appropriate to

* *There have been,and are, various safety regulations displayed in factories throughout the world. These are often required by law; but of what value are they if the people in these workplaces are illiterate.*

** *K. Venkatasabramanian : Education for Development (Unesco)*

agricultural communities and to their basic needs is also receiving the increasing attention of education. This and the continuing development of the "modern economic sector" will, in due course, naturally call for the introduction of technological changes, possibly in a form different from those generated by the capital intensive industrialization of the West. These countries will, sooner or later, be facing educational concerns similar - not identical - to those now engaging the attention of the industrialized West. One of these concerns is whether the emphasis in education ought still to be on the general or on the specific and vocational.

III. GENERAL OR VOCATIONAL

It is not unusual when considering the skills which will be useful to a worker in a technological society to draw attention to the need for appropriate mathematics and science courses. In the "Myers Report"* alarm is expressed at "the small proportion of students who take technologically oriented subjects in the last years of secondary education" and the Report urges more training in mathematics and science. This reflects the often expressed concern in the business world. This is natural, but it must be remembered that a nation needs its writers, poets, artists, musicians, dramatists, politicians, humanities teachers etc. as much as its engineers, physicists and chemists. Many educationists feel that while education in the sciences and mathematics is necessary emphasis should still be on the general rather than on the specific and vocational. They point out that Sweden and Switzerland are the most scientifically innovative of all nations, per capita-wise, and they attribute this to the fact that these countries had the highest literacy rates in Europe two hundred years ago, and also to the rigorous level of their *general* education and culture.

There are other considerations for this emphasis on the general rather than the specific. All of us have an idea of values which make life worthwhile. They reflect our belief in the necessity of finding ways to live together peacefully, in the need to share resources equitably, in the worth of such ideals as truth, honesty and justice, and in the concept that we are on this planet to serve one another. This means harnessing the best that people can do so that our future will make the best of the possibilities inherent in change. We must always bear in mind that our choices in the present circumstances will determine what sort of future we and our successors will have.

* *Report of the Committee of Enquiry into Technological Change in Australia (CITCA) "Technological Change in Australia".*

Educational activities, both curricular and extra-curricular should also be designed to promote among educands the ability to foresee trends, to be flexible, to make decisions, to take initiatives and to adapt without delay to new situations. While such education will depend, to some extent, on systems and curricula, the crucial factors will be the quality, the competence, the character, the sense of dedication and the devotion to their work of educators. This in turn will depend on the extent to which conditions in the educational service will attract men and women of quality, retain them in the profession and induce them to continue equiping themselves for their work in the challenging conditions of a rapidly developing technological society.

IV. FURTHER EDUCATION

The meeting of Ministers of Education of Asia and those concerned with national planning held in August 1978 in Sri Lanka recommended, among other things, that if education is to respond to changing needs it will be necessary for teachers to undergo periodic retraining. There is considerable wisdom in this recommendation, though there are doubts as to the extent to which it has been implemented.

During the 1970s automation and other technological changes spread slowly but surely. The 1980s have been marked by very rapid technological developments. The drive to increase production naturally led to an increased use of new technologies. This in turn has resulted in shifts in employment; not only a quantitative shift in total skill requirements, but also a qualitative shift in skill demand. This development shows no signs of slowing down or grinding to a halt. On the other hand it is continuing with increased momentum. Schools, colleges, universities, technical training institutes etc. cannot by themselves keep up with the rapidity of these changes. The education received in these institutions has to be continuously supplemented, or even remedied by further education or "lifelong education" as it is sometimes called. In this connection an idea put forward jointly by Tom Whiston, Peter Senker and Petrine Macdonald* is very interesting. According to them "Technical change, instead of causing unemployment, can be used to create the opportunities for people to have continuing, lifelong education. Instead of a population being unemployed, a similar proportion could be taking periods off during their working lives (with pay of course) for further education, both to suit them for changing job roles and also as personal enriching experiences".

* *In their Introduction to "An Annotated Bibliography on the Relationship between Technological Change and Educational Development".*

On whom does the responsibility fall for further education. The primary responsibility obviously lies with the individuals concerned for they will be the beneficiaries culturally as well as vocationally. It is essential therefore that primary and secondary education be directed, among other things, to promoting a conviction of the necessity for continuing lifelong education. Employers too have a responsibility. They should work out schemes by which they can give their employees time off (with pay) during their working lives to educate themselves to work and live meaningful lives in a rapidly changing society. It may be necessary for the State to adopt relevant legislation and set up effective machinery to ensure that employers discharge this obligation. Protests may be made about "intervention". Sabatical leave has been a regular feature of academic life for centuries and no cries were made against "intervention", because there was general agreement that such leave for further study was essential for maintaining high academic standards. All that is called for now is an extension of this principle to non-academic fields in which high level skills are necessary. In concluding this section it must be said that one cannot over-emphasize the fact that individuals owe it to themselves and to society to keep on learning whether assisted by employers or not. This is a responsibility which no human being should shirk, particularly teachers. Mahatma Gandhi once said that a teacher who does not continue learning is like a candle which has burnt out. He or she will cease to shed light.

V. EDUCATION FOR LEISURE

In Section III of Part II attention was drawn to the fact that the world is moving towards a shorter work-week and to an increasing number of paid holidays. France is approaching the standard business year of 220 days established by Marcus Aurelius in Imperial Rome. The likelihood of other countries moving in the same direction cannot be ruled out. Teachers in Asia have on an average a 180 to 200 day working year. Warnings have been heard that we are facing "the unwelcome prospect of an age of leisure". The warnings are timely: their underlying pessimism is unjustified. As a matter of fact the increasing tendency towards an extension of the division of labour and the fragmentation of knowledge is forcing many people to seek fulfilment outside work. They are seeking self-expression through the arts, a variety of cultural programmes, craftwork, hobbies, sport etc. They do so for the intrinsic worth of these activities for enhancing the quality and the diversity of life, personal development and physical as well as mental health. Education at all levels should pay considerable attention, through curricular as well as extra-curricular activities, to stimulating this search for self-expression. The alternative is a tendency for people not to seek self-expression but to suppress self-expression through alcohol,

drugs , mere spectacular sport, unsavoury television or cinema programmes, gambling etc. In view of the definite benefits people can reap from the use of leisure and the serious social consequences of its abuse, governments have an obligation to encourage, assist and also subsidize activities designed to promote a meaningful use of "time free from work". A welcome sign is that many governments are already doing so. It must, however, be pointed out that, with a few notable exceptions, this encouragement and assistance does not measure up sufficiently to the requirements of the time.

VI. SOCIAL REVOLUTION IN EDUCATION NECESSARY

The implication of all that has been said about the impact of the new technology on work and leisure is that equal educational opportunities should be available for all. Unfortunately this is not the case.

School enrollment figures furnished by governments, though accurate in a sense, generally conceal a truth. For example if the enrollment of 15 to 19 year old young people in education is given as 45 percent, the truth that is concealed is that of those 75 percent are from the middle and upper classes, and only 25 percent from working class areas. Education in many countries, developed as well as developing, tend to perpetuate existing social, class, regional and - in some cases - ethnic divisions, when one of the aims of education should be to eliminate them. Dr. Ronald T. Fitzgerald* rightly argues that "the structural inequalities in society are nowhere more evident than in school systems". He draws attention to the fact that "because the myth of equal opportunities is so widely accepted . . . . the nature of unequal outcomes is ignored", and that the failure to succeed "is not viewed as the inevitable result of the way society is structured but as the fault of the individual". It is true that the learned Doctor is referring to the situation in Australia but his comments are applicable to almost all, if not all, the countries in the Asian and South Pacific region. In fact in most countries in this vast region the educational and occupational futures of people can, even today, with reasonable accuracy be predicted on the basis of answers to three simple questions. Where do you live? What do your parents do? What school do you go to? The danger is that in this "information based post-service society" these class structures tend to be perpetuated. What is necessary is, as Barry Jones declares, "a social revolution in education by establishing and maintaining a democratic, pluralist and egalitarian education system which will give working class children, rural as well as

* *Poverty and Education in Australia*

urban, the same range of educational options and quality instruction, including access to tertiary education and the securing of professional qualifications - as are enjoyed at present by the urban middle and upper classes". Such a revolution is not likely to be promoted by politicians and educational administrators who have vested interests to protect. Teachers' organisations owe it to society to study all relevant issues and seek the cooperation of other forward looking voluntary groups, particularly trade unions, to bring about this silent social revolution. To fail to do so would be to fail in one of the most important duties of a teachers' movement because the technological determinism of this age will stratify class divisions even further.

VII. CONCLUSION

All our countries are facing, in various degrees, the demands of social and technological change. It will affect each one of us differently, according to the circumstances of culture, economic situation and social pressure. The inescapable fact is that it will affect us. The question for all of us therefore is not whether we need to respond to change but in what manner and how soon we will respond to it.

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I. This paper has been based largely on two publications. These are The Introduction by Tom Whiston, Peter Senker and Petrine Macdonald to "*An Annotated Bibliography on the Relation between Technological Change and Educational Development*" and Barry Jones' excellent book entitled "*Sleepers, Wake! Technology and the Future of Work*". The Introduction to the Annotated Bibliography is very useful as it deals separately with issues in the Developed and in the Developing Countries. Barry Jones' book (published by the Oxford University Press - Melbourne) is a major statement on technological change and its possible consequences. It makes a forceful case, in rather strident terms, for the deep concern expressed for the future and has substantial remedies to suggest, all of which are worth serious consideration. It should prove a useful "Handbook" for every teacher.

II. Other sources were

1. "Papers Specially Prepared for the Asian Programme of Educational Innovation for Development" - (APEID, Unesco)
   This is a collection of six papers written by Indian, Korean, Nepalese, Philippino, Malaysian and Australian (Tasmanian) Educators.

2. Daniel Bell, "*The Coming of Post-Industrial Society : A Venture in Social Forecasting*" (Heinemann, London)

3. Carlo M. Cipolla, "*Literacy and Development*" (Penguin)

4. Barry Cohen, "*Green Paper on Sport and Recreation*" (Australian Labour Party)

5. Ronald T. Fitzgerald, "*Education and Poverty in Australia*" (Australian Government Publishing Service)

6. Aldous Huxley, "*Brave New World*" (Penguin)

III. Recommended for Additional Reading

1. Stanley Parker, "*The Future of Work and Leisure*" (Paladin, London)

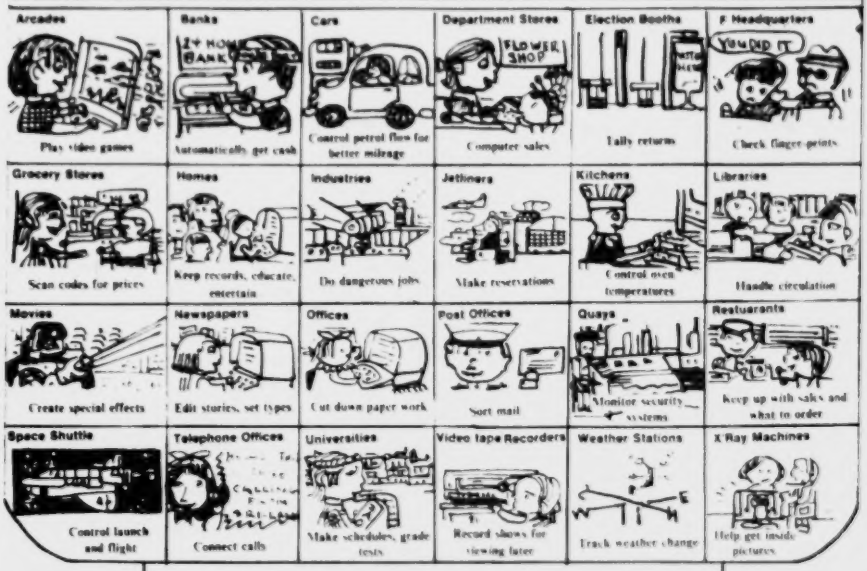
2. E.F. Schumacher, "*Small is Beautiful : A Study of Economics as if People Mattered*" (Abacus, London)

3. Norbert Wiener, "*The Human Use of Human Beings : Cybernetics and Human Beings*" (Eyre and Spottiswoode, London)

4. C.G. Weeramantry, "*Slumbering Sentinels*" (Penguin)*

* *This book by the Professor of Law of Monash University, Melbourne, studies human rights situations that can arise with the introduction of the new technologies.*

What computers help us do quickly



From A to Z

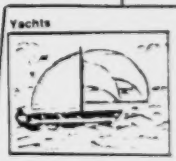


Figure fastest racing course

Computers are here, there and everywhere. This A – to – Z list will give you an idea of some of the places you might find them.

Often we don't see computers. They are behind the scenes, doing many tasks that used to take humans much more time to do.

Computers are useful tools we humans control. They will be touching our lives in many ways in the years to come.

Keep track of animals for breeding

CHAPTER III

TECHNOLOGY IN TEACHING AND LEARNING : CHANGES IN THE ROLE OF THE TEACHER AND IN THE SKILLS REQUIRED BY TEACHERS

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Introduction

The basic media of instruction in schools have long been textbooks, chalkboards and teachers.

Although some audio-visual supplementary teaching materials such as charts, pictures and overhead projectors have been added, it can be said that the major instructional media in many of the developing countries are still textbooks and teachers. This contrasts greatly with a new effort being made by some of the davanced countries to use more of communication technologies such as radio, TV, computer, video and satellite in education.

In many developing countries, the advanced communication technologies are being effectively utilized in various fields. But it is a common phenomenon that these technologies are under-utilized in schools.

Children of the 20th century are living bombarded with technological devices such as TV, computer and VTR. Education needs to embrace the pervasive impact of technologies and utilize such technological devices effectively in schools.

School education of the 20th century aloof from the technology is difficult to conceive. Teaching today's children with yesterday's tools will obviously result in ineffectiveness in education. Here, I would like to point out two important issues that are directly related to educational effectiveness.

The one is the problem of generation gap. The fact that the children born in an era of science and technology and of information are being taught by teachers who were born in a pre-technology era and most of whom have a tendency to shy away from using technology in their teaching creates the problem of generation gap.

The other one is the educational problem of depriving young minds who will take the leading role in a highly

industrialized and technological society, of the opportunity to learn about technology. Every nation on earth depends for its future on today's education, and the countries in the Asian and South Pacific region are no exception to this rule.

Education should take a front seat in leading young minds and society as a whole. It is a known fact that education performs dual functions : (1) the function of transmitting knowledge and the cultural heritage for the continuity of civilization; (2) the function of stimulating and nurturing creative ability in people so that they can further develop the acquired knowledge and heritage. To let the twofold functions of education work successfully, teachers must take the initiative in leading the education role. They must be the models of well-informed persons well-adjusted to a fast changing, highly technological society.

It is not difficult to notice that the methods of farming of about 5 to 10 years ago became obsolete due to newly developed machines and the innovations made in farming and agricultural sector.

In education, contemporary teachers witness every day the emergence of innovative educational hardwares and softwares, and these newly developed technological devices demand new educational forms and practices.

A great change in teaching methods is called for. Traditional methods such as the delivery system which depends entirely on teacher's explanations need to be changed and reformed.

As long as one is aware of the fact that the future of one society is depending upon today's education one should not hesitate to question the effectiveness and the productivity of education. Here, a highly productive and effective education does not mean that it excludes the quality aspects of the goals and content of education. It rather means a harmonized effort to interweave the desired goals of education and prescription of methodologies.

This paper deals with the enormous impact of world-shaping communication technologies on education, the problems and issues of incorporating and applying advanced technologies to educational development, and the implications for future directions in education.

The above issues are being examined through dealing with the following three questions :

1. What are some of the new educational technologies that

demand reforms in teaching and learning in schools?

2. What are the problems and issues of incorporating and applying these new technologies in schools?

3. What are the implications and prospects of technologies and education?

I. New Communication Technologies in Teaching and Learning

Throughout the history of education, technology has been closely linked with education. At the beginning, clay tablets and papyrus were used. Then papers, inks and pen were utilized. Soon, chalkboards, textbooks and pictures were used as instructional tools. Recently, films, records, transparencies are being used in teaching. A great many students are at present studying through radio and television and through many other electronic media, video tapes, telephones and satellite.

The emergence of newly developed technological devices such as videodiscs, micro computers, computer graphics, electronic terminals and low-cost terminals is creating instructional reforms. It is working as a powerful stimulant for the creation of new and innovative instructional techniques and methods. It is also helping to expand the educational opportunity to everybody.

These are the enormous impacts that the advanced communication technologies have on education. Indeed, the development of technologies has brought new dimensions. For example, the original function of telephone was to communicate with others through wires. However, it is now being used for various purposes including the sending of computer-generated graphics.

It is impossible to enumerate and explain all the newly developed communication devices of the 20th century men have created. Since the purpose of this chapter is to briefly review the newly developed communication technologies which demand great changes in education, major technologies are being classified according to their use and presented below (see the table 1).

From radio to satellite, we have a wealth of communication technologies in front of us that can revolutionize education when properly and wisely utilized. Some educators of many countries have been ignoring the technologies because of the disappointment they have had due to the haste and immature application of the technologies to education. Only when they are rightly utilized, the true worth of such devices can be appreciated.

It must be said here that the specific issue of how the teachers use the technologies in their teaching deserves comprehensive research, and it also holds the very key for the successful dissemination of the communication technologies in schools.

Table 1 : Major Technologies Classification by Use*1)

	used locally		used over distance	
	Hardware	Typical Application	Hardware	Typical Application
Audio Audio-graphics	Audio Tapes Audio Cassettes Audio Recorders Audio Cassettes Recorders	Stored lectures & discussions, instructions	Radios Telephones Electronic Blackboard Slow-Scan TV Facsimile Dial Access	Preproduced & edited programmes Lectures, seminars, discussions Retrieval of accum. information Transmission of document still images, etc. Audio-conferences
Computer	Minicomputers Personal Computers Word Processors Animation System	CAI CMI Computer-aided testing Problem solving	Central Computer System Remote Terminal Time-shared computing	Information retrieval of audio information CAI CMI CAT Problem solving electronic message delivery Computer conference
Video	Video Tapes Video Discs Video Cassettes Video Cassettes Recorders (VCRs)	Stored lectures and presentations Interactive instructional programmes	Instructional TV Fixed Service Cable Satellite Broadcast TV	Preproduced & edited programmes Lectures, seminars, discussions Video conferences

*1) *The Table presented here is adopted with some modification from the Grayson's Classification Table which appeared in Encyclopaedia of Educational Research (5th Ed.). p. 1325*

The educational uses of communication technologies are being classified into 6 areas, and each area is briefly introduced below.*2)

1. Passive Instruction

Passive instruction is the most traditional one. It usually presents a stimulus to a learner and the learner is being exposed to a stimulus.

Listening to a lecture, radio and watching a TV programme are examples of passive instruction. The well-known American television programmes "Sesame Street" and "Electric Company", and some of the typical educational or instructional television programmes and radio and television lecture series for open high school and university students of many countries are examples that use the technologies in passive instruction.

Here, a remarkable development of video production, technology constitutes a new venture in education. For example, the computer animation system developed in recent years is lowering the cost of programme production when compared with that of hand animation techniques. Also, video processing utilizing computers makes detailed correction of video images possible.

These technologies have been mainly used in the production of commercial TV programmes or motion pictures. However, the technology is now being utilized effectively in creating teaching/learning materials for concept learning and process learning where visualization and illustration of examples are quite subtle and difficult.

Complex physical processes, such as fluid flow or road stresses on a structure such as bridges, can be simulated on computer and displayed as dynamic graphic images. Video cassette recorders (VCRs) and video discs promise to relieve students from dictation. VCR allows instructors and students to copy instructional programmes off the air and play them back at some later time.

2. Interactive Instruction

This technology is used to teach a specific subject or skill directly to a student, guiding the learner through a

*2) *The six areas of use of technology in education was adopted from Chapter 5. Educational uses of Information Technology, in the Information Technology and Its Impact on American Education published by Office of Technology Assessment, Congress of the United States, 1982, pages 55-61.*

sequence of steps involving the presentation of information, drills, and exercises designed by an instructor. Interactive instructional systems require the student to communicate with the device, allowing the system to vary the pace of instruction, select among alternate sequences of presentation, test for understanding, and alter the content according to the specific needs of the individual.

Computer-assisted instruction is the best known interactive technology. A student sitting at a computer terminal works through a series of "frames" that teach and test understanding. If the student is progressing slowly, the computer branches to an alternate type of presentation or a remedial section. If the student has mastered that section, the computer jumps ahead to more advanced material.

Four factors have more recently revived interest in interactive instruction : 1. the rapidly declining costs of computers and the advent of the desktop computer; 2. the escalating labour-intensive costs of traditional schooling; 3. an improved understanding of how to create instructional packages; and 4. the development of alternative delivery mechanisms that link the computer with other technologies such as video disk and interactive cable.

The video disk is a good example of how new technologies can be combined to form instructional systems. The video disk contains an extensive data base of text, still images, and film. The computer controls the sequence of presentation and, in using an educational programme contained on its floppy disk and information stored in the remote data base, interacts with the student.

The video disk, for example, might contain several thousand images of microscope slides. The data base would have full descriptive information on the subjects illustrated by the slides, indexed in various ways. Educational software on the computer would take a student through sequences of slides and text presentation, providing information and administering tests. While the computer programme would be designed to achieve a specific instructional purpose, the slide catalogue and data base would be intended to be more widely applicable for research and education.

3. Learning Environments

The interactive instruction technology described above can be used to create a special environment - a language, simulation, or data base - that can be manipulated by the student.

For example, special computer languages, such as LOGO, can help learners gain particular problem-solving skills.

Another form of learning environment is simulation. A simulation of a laboratory experiment for a physics course, for instance, might present on a television screen a variety of weights and springs. The student would be allowed to "connect" them in various configurations, to apply forces of prescribed amounts at different points in the arrangement, and to measure and record the results. Working with this system for only a few days, a student would learn some basic principles of mechanics. As another example, large-scale simulations can be made of physical processes or of equipment that might be too expensive or dangerous to use in person. Simulated nuclear powerplants provide vehicles for training new operators; simulated aircraft are used for pilot training.

For medical education, computer-controlled robots can be used to simulate injured or ill human beings. A small computer presents the student with an instructional sequence where proper techniques are illustrated using a computer-controlled video disk. The student then practices on a dummy with sensors monitored by the computer, which, in turn, presents the results to the student.

Simulations of economic and social systems are used to teach political science, economics, and management. Business management games are one of the earliest educational applications of computers, and they have been deeply integrated into the curricula of many business schools. Other educational applications range from simple economic simulations on small computers to elaborate simulations of city management and international politics that require very large computer systems.

4. Information Resource

General information literacy is needed for all individuals to work and to participate fully in an information society. In addition, for most professions, specialized computer and communication-based systems are rapidly becoming indispensable tools of the trade. Students must learn how to use these services as part of their early training.

For these reasons, in addition to being an instructional tool, the computer in education is viewed as an intellectual and problem-solving resource, akin to the library or laboratory. Information services will need to be both broad enough to support general education and specialized enough for particular subject matter. Examples of specialized systems include computer-aided design systems for industrial engineering students, on-line legal or medical information retrieval systems for use

by law students or doctors, and automated accounting and financial analysis systems for business students.

The role of the computer as an educational resource on campus is blending with the view of libraries as automated information centers.

Many college and university libraries have been among the leaders in this movement - first in automating their management, then in providing users access to computerized bibliographic services. Their ultimate goal is to provide full-text, on-line retrieval. Nowadays it is not difficult to observe some of the pioneering institutions merge computer center and library into a simple, automated information utility.

5. Administration and Instructional Management

Information technology can be used by the teacher to help plan coursework and manage the classroom. Computers not only assist with mundane daily tasks such as grading and record-keeping but can also help keep closer track of the daily accomplishments and problems of individual students. Teacher attention can, thus, be more focused on individual student needs. Teleconferencing via radio, television, or computer allows teachers to exchange experiences, develop curricula, and coordinate educational programmes among a number of schools in a district.

6. Distribute Education

The distribution of services to those who need them has always been a difficult problem for the educational system. For as long as education has been provided by schools, the distribution problem has been responsible for institutional constraints of both time and location on the student. That schooling takes place on a physical campus, attended principally by young people, may be more reflective of the limitations of the traditional schooling system than it is of the current needs of society for education.

What this implies is that a significant gap may exist between the forms of educational needs of a modern information society and the traditional institutional forms of educating.

Information technology is a tool that can address these two distributional problems - distance and time. In the past, television and radio have been used for this purpose, often to good effect. However, their applicability has been limited both by the need to use expensive and scarce broadcast facilities to serve a relatively small clientele and the inability to provide interactive services

Modern technology removes these barriers. Communication facilities such as cable, direct broadcast satellite, low-power television, and video cassette and video disk will greatly increase the number of information channels coming into the home and office. Two-way cable, remote conferencing facilities, and optional video disk microcomputer systems provide the capability for interactive education.

II. Problems and Issues in Applying Advanced Technologies to Educational Development

In the previous chapter, various kinds of advanced information technologies and media and their educational use were briefly examined. Although some countries in our region are utilizing some of the advanced technologies in education in various ways, it can be safely said that those new technologies and media are predominantly advanced and being used by advanced countries in the western hemisphere.

There is no doubt that when such technologies and media are being effectively used in schools, educational effectiveness and productivity will be greater. However, there have been some concerns about ill effects of technology in education. Some of the concerns were that when too much technology is being used in schools, the chance for personal contact between the teacher and the students might be greatly reduced. Also students' calculation or grammar ability would be underdeveloped owing to their excessive dependence upon calculator or word processor. Yet, it can be said that there is no argument about the enormous contributions that the technologies can make to education when effectively applied and utilized in schools.

I think perhaps that such technologies are needed more in countries where the labour-intensive characteristic of the teaching/learning process prevails than in countries where such technologies are being originally invented and developed.

It appears that technologies and media will be greatly used in most of the South-East Asian countries where talk-chalk methods with textbooks to over-crowded classes are the dominant features of school education.

Although it is on a small scale as yet, it may be observed here that many of the countries in the Asian-Pacific region have started to utilize TV, computer, video disk, and computer graphics besides the low-cost technologies such as radio-vision, taking card system, magnetic sheets and teaching machines that they have developed and modified to suit their local needs.

Unfortunately however, most educators and policy makers of many developing countries still think that such technologies belong to rich countries. Such thinking perhaps could have come from the perceptions that they have of technologies, such as: first, the cost would be unbearably too high, second, education can be carried out perfectly well without such technological gadgets, and third, there is an unwanted possibility of making education dehumanized.

However, it is a fact that developing countries have been depending upon advanced countries in many sectors such as agriculture, industry and medicine, including education. We cannot deny the fact that there exists a great gap between the advanced and developing countries in the areas of educational capability and conditions. This educational gap can be directly linked to national capability for development.

Instruction for the contemporary children who will lead a highly technological society of the 21st century should effectively incorporate and apply advanced science, technology and media in teaching. Failing to use such technologies in schools means failing to keep up with current and innovative teaching methods and techniques.

If one thinks of the magnitude of the expectations of a society on its education, one will realize that such failure in making the best use of instructional technologies for effective teaching pays too high a price. I suppose this is the very reason why so many of the developing countries in our region are putting forward their best efforts to modernize their education.

Here, I would like to examine some of the problems and issues in applying advanced technologies to educational development.

1. <u>The Attitudinal Problems and Issues of Educators and Educational Policy and Decision Makers</u>

To successfully implement new technologies and make them an essential part of education, concerted efforts and support from many interested groups are needed. When teachers who are supposed to be the leaders in education are themselves unfamiliar with technological devices and shy away from using such gadgets, no progress will be made in incorporating technologies in education. If policy and decision makers put too much weight on educational goals and content, thus neglecting the importance of educational effectiveness, technological devices such as computer and VCR would be considered as unnecessary frills if not as waste.

The attempt to introduce and implement innovative ideas to school education demands, as in any field, great attitudinal changes in the interested parties.

For example, students need to adjust to a new way of learning, and teachers to a new way of teaching. Parents might oppose new and different ways of instruction, and this might apply to students and teachers. Therefore, a strategy is needed that will help to change the attitude of interest groups toward a planned direction when especially innovative ideas are being introduced.

Without a deep consideration and a careful examination given to the attitudinal problems and issues of interest groups when conceiving the idea of implementing new technologies to education, only difficulties and frustrations will result, with a great waste of time and money. It is easy to account for some of the examples of failure of implementation due to hasty and somewhat disorganized operation of the programme, such as the installation of low-cost terminals in every school without appropriate supporting facilities and teacher training.

Analysis of the causes of disappointment, apathy and resistance of the decision makers and teachers, and effective measures to tackle these problems, are the key issues to be considered for a successful implementation of innovation.

2. The Problems and Issues Associated with Cost

The cost issues, especially in developing countries, are the major area of concern when implementing innovation. One of the important issues here is the fact that policy makers, school administrators and teachers think that such expensive technologies are a luxury. Of course, that might be true. But if meaningful educational results can be achieved through the use of technologies which might be rather high in cost, one should not hesitate to invest capital in such a task, because it in fact raises effectiveness in relation to educational cost.

The thinking of most of the decision makers that the education can be carried out with minimal equipment such as classrooms, textbooks and teachers is apparently acquired through their previous educational experience that was a cheap, labour intensive process of teaching and learning. Contradictorily decision makers do consider education as the top priority for national development.

New technology and advanced communication media, except in the field of education, have become a part of everyday life. Most of our work will soon have to be involved with computers,

and already in our region, we have witnessed the technologies being in use for collecting the most recent data and holding a conference. The time has come for us to be more actively involved in knowing about technologies and their use in education.

In implementing the application of advanced technologies to education the following issues are to be carefully considered. First, apparent cost estimated at the planning and decision stage is lower than actual cost presented at the implementation stage, and decision makers should pay a close attention to this aspect. Second, when only initial capital investment is secured, with no additional capital allocations for replacements or current expenditures budgeted for maintenance, serious financial problems and waste result. We have quite often seen many pieces of newly-bought equipment being stored in a closet. Third, a careful cost-effectiveness analysis should be done in advance. For example, to increase educational efficiency by 20% by greatly increasing the current cost may not necessarily be cost-effective when compared to a 10% efficiency increase with very little cost increase. Also when a loan is made, one has to be careful not to be forced to buy "ties" such as untransferable parts, contracts for technical consulting, and so forth.

3. Problems and Issues Associated with Transportability, Availability and Transferability of Hardware and Software of Advanced Technology

If a country has to depend on importing the system or some aspect of a technology from another country, it should study the various types of machines available with regard to their overall suitability. Introducing a new technology against one's wish may have the effect of increasing the gap between advantaged and disadvantaged. For example, some technologies may be usable only where some necessary conditions or services are available.

Problems also exist with regard to the transportability of microcomputers. Even though the microcomputer itself is extremely robust, the peripheral equipment such as disk-drives and printers can be expected to need servicing about once every two years, and inferior video display units will probably have a life as short as 3 years. (Though the better quality video display units will last 8 years). Programmes will not, in general, be transferable from one brand of microcomputer to another. With video technology the different recording formats create special difficulties.

It is difficult for a country to produce sufficient software for its own use. On the other hand language or cultural

sensitivities may make software from other countries inappropriate. This area of software transportability should be one for careful consideration by governments considering new technologies.

Several developing countries have rushed in to create a technological infra-structure either under politic-economic pressures or from a genuine desire to advance at a faster rate. Hurried attempts at software planning and production frequently result in "borrowing" readymade communication packages the relevance of which is doubtful. This may result in confusion, disappointment or lack of faith in the media or the policy itself.

4. Problems and Issues Associated with Infra-structures Preparation and Continued Support

In many a case, new technologies and innovation are adapted and implemented only to disappoint and frustrate the interested groups. Often the inadequate analyses, if ever made, of pre-conditions and of required infra-structures are among the factors most responsible. Some of the basic technical infra-structures like availability of electricity at a steady voltage, repair and maintenance services, and trained manpower for technical maintenance for production of software are sometimes overlooked.

Another aspect of the use of modern communication technology that needs attention is its appropriate role and place in the existing systems. Formal education is an example in point. It has a well defined system of classroom teaching with assistance from printed texts and other visual aids. Television or radio when introduced without special thought being given to the role they would play in addition to or in improvement to what already exists can again create apathy.

Technologies have mainly begun in developed countries and then gone through a process of evolution. The developing countries have a dilemma as they wish to skip the evolutionary phase and immediately adopt the advanced technologies. Necessary preparation for readiness to receive the technology must not be forgotten.

Even when a decision to purchase some piece of technology has been made there may be problems with the manufacturer being unable to supply sufficient spares.

Hardware development has often outstripped the pace of documentary support. When equipment is ordered it is important to ensure that the documentation necessary to operate and maintain it effectively is available. A manufacturer may discontinue production of a machine and maintenance stock. Some

guarantee of continuing support should be required before purchase. Some education systems have been persuaded by manufacturers to buy semi-obsolescent equipment cheaply only to find that support then ceases and the investment made does not realize its full potential.

Besides the above four issues and problems discussed, there still exist many other areas to consider when planning for importing and implementing new technologies to education.

For example, a comprehensive research into the technology importation can be undertaken. The availability of supporting systems and perhaps temperatures or weather conditions necessary for such equipment to be operated need to be checked. Also the possibility of regional cooperation, for example, software exchange, among countries with similar cultural and language background need to be considered.

III. Technology and Education : Implications for Future Direction

So far I have tried to review the emerging advanced communication technologies and the way they can be used for teaching and learning. Efforts also have been made to analyze problems faced by and issues to be considered by the developing countries in the region for more effective implementation. For effective use of advanced technology in educational development, it is important not to lose sight of the impact that it will have on the end-users such as pupils, teachers, trainee teachers, teacher educators, university students, lecturers and last but not the least the administrators and managers of educational institutions.

To many first-time users the technology involved (computers, video or satellite) can be very intimidating and the general reaction is often one of resistance.

To assure these feelings of anxiety it is necessary to bear in mind the psychological impact on existing staff and students if advanced technology is thrust upon them without properly planned orientation procedures.

Of course technology itself is only a means to an end of improving education. The real changes in the quality of education come from a better understanding of how children learn, what the goals of education should be and how a community can better achieve the goals. They are also dependent upon the careful selection of appropriate multi-media approaches using the emerging advanced technologies. Technological devices can ony help to improve the efficiency of the educational delivery

system. They cannot by themselves improve the quality of education. One of our tasks is to ensure that efficiency is improved without compromising quality.

However, to educate is basically to bring about changes in students through instruction supported by effective means of communication. No matter how lofty the educational goals and objectives may be, desired learning outcomes cannot be easily achieved when appropriate and efficient teaching-learning methods and conditions are not provided.

Except a few advanced countries, most of the developing countries in our region have been passive in pursuing the task of importing and implementing advanced communication technologies into education.

Our society is bound to be a technologically oriented one. Telephones, cars and bicycles which were the products of advanced countries have now come to be indispensible appliances for everyday life. Before we know it, computers, video cassette recorders, video disks, satellites and many other related softwares will soon become part of everyday life. Already in many developed countries, VTR, VCR, microcomputer and other softwares are being sold at supermarkets. This foreshadows the easy accessibility of such technological devices in developing countries as well.

Education can either promote or hinder social development. The longer we keep turning ourselves away from the influx of advanced technologies and the utilization of such technologies in education, the slower the modernization process of our society will be.

Faced with astonishing achievements made by some of the advanced countries in the area of communication technologies and media, we have gone through a period of hopelessness and psychological depression, taking it for granted that we are too poor, and too far behind and that our problems outnumber available solutions, and their remedy is beyond our capabilities. This pessimistic climate and retreat from exploring new solution strategies has affected the operation of our educational systems. We have cast ourselves adrift, forgetting the glorious cultural triumphs of our Asian ancestors.

CHAPTER IV

TECHNOLOGY AND THE STATUS OF WOMEN : NEW CHALLENGES FOR EDUCATION

Edna Tait, Executive Committee Member, WCOTP

Mr. Chairman, Colleagues,

This year the United Nations Organisation celebrates 40 years of existence. The last ten of those years have had a special significance for women because of The Decade for Women, and The United Nations Conference in Nairobi last month set out to review the decade's achievements. Under the headings of equality, development and peace, governments were invited to send in, before the conference, their accounts of the decade. One aspect of the development section is very relevant to the theme of our conference. It was headed science and technology. Of all the nations, only 77 or about half, replied to this section. Their answers were incomplete, inadequate, inconsistent or open to different interpretations. The report on science and technology, therefore, warned readers that its findings were limited. It also contained a comment which I now quote : "Almost half of the governments of developing nations stated that there were no major obstacles to ensuring that scientific and technological developments involved and benefited men and women equally". (A/Conf./116/5/Add.)

Another report (on Industrialization), also poorly answered by governments, contained this comment and I quote again : "The replies received from governments (developing and developed) revealed a reluctance to consider women as equal participants in industrial development and in society as a whole. Women were generally viewed as consumers and users of the new technologies rather than as producers (of them)". (A/Conf./116/5/Add.)

Colleagues, this is the reality of the world in which we live. Our work to improve the status of girls and women, our work to achieve equal rights for girls and women is being carried out in a world where governments fail or refuse to see obstacles to equality or still see women as passive users and consumers. It's a world where even in a United Nations decade for women, governments have kept better records about their cattle and grain than they have about the girls and women who look after the cattle and grain.

My first point today, therefore is that when we talk about the struggle for equality for women, we are always talking about the struggle to change attitudes about women. Until we break the cycle in which each new generation of children is conditioned by society to accept unquestioningly the lower status of women, we shall always have that status. Until the cycle is broken and all boys and men, all girls and women, know and accept unconditionally that neither sex is more desirable nor inherently superior, then women will remain unequal in their work, their leisure, their decision making (and its power) and the resources of this earth. Women's life choices will remain fewer than those which are available to men.

So, although today I am talking about new technologies and the status of women, the basic problem of attitudes and life choices is still the same. As I have already shown, we cannot rely on our governments to break the cycle of social conditioning of children. Therefore, the basic challenge for education is to change attitudes about and to improve life choices for girls and women.

My second point today is also a general one and it concerns the problem of literacy. The technology of literacy has moved into a second stage. The first stage of universal literacy began with Gutenberg and his printing press. The illiterates of this stage are those who cannot read cr write. The second stage has begun with technology and in particular the computer. The new illiterates will be those who have no access to, no control over the new technology and the power it brings. Girls and women have suffered greatly in the first stage. United Nations figures for 1985 show that :

- more than half of the world's female population are unable to read or write,
- women are the majority (up to 70%) of the world's illiterates,
- this percentage has been constant for 20 years.

I wonder how girls and women will do in the second literacy stage?

Literacy is the vital first step towards knowledge. Too many girls and women have been denied that first step in the past. The challenge for educators today is to do better with technological literacy than we have done with traditional literacy.

My third general point is one which is obvious but as with so much that is obvious, it needs constant repeating.

Every girl and woman in this world, directly or indirectly, is and will continue to be a part of this new technological world. Whether she is at school, in paid or unpaid work ; regardless of what social, economic or political system she lives in, she is and will continue to be affected by the new technology. She must, therefore, know about it, be involved in its design and applications and share in its power. Let us not forget that the new technologies provide those who control them with very efficient methods of oppressing those who have no control over them. If we do not educate girls technologically then as women they are certain to be the new oppressed and it will be done in the name of progress - and nothing will have changed for the status of women. The challenge for education is to ensure that the basic right of every girl to knowledge about her world and what it offers is met.

I move now to focus on the topic of technology and the status of women more closely. I am not going to talk about any specific technology because in each of our countries we have different levels and kinds of technology. Secondly, even if we were all technologically similar, technology itself is changing so quickly that any specific references would be out of date before the special challenges they bring to teachers had been examined. As well, just as technology has replaced industry as the word for mechanical progress, so in its turn technology will be replaced by another word. My thoughts, therefore, are in terms of some basic principles about anything now or in the future which is mechanical or technological or electrical or whatever else it may be called.

You will find, also, that my comments, related as they are to girls and women, could equally be applicable to any disadvantaged group in our countries : the rural poor, the new urban poor, ethnic minorities or majorities with low status, refugees - you can complete the list yourselves, I am sure.

And when I look at the "new" challenges technology brings to education for girls and women, they will sound very much like the old challenges. This should not surprise us. There have always been new things to teach and girls have so often not been taught them. In fact, I see only one "new" challenge for education from today's technology and it applies to boys as well as girls so I will give it to you now with the warning that it carries a special urgency for girls because they for the most part are further behind the boys technologically.

The new challenge is the speed of change. Change itself is not new but in the past when something new was produced we had time to learn about it, adapt it to different situations, correct our mistakes with it. When the car, for example, began,

it trundled along with the horses, then it gathered speed, comfort and safety and replaced the horses. It was joined by buses and lorries and taxis - and motorways and roadside restaurants and traffic lights and traffic police. We have over the years added brakes and springs, better gear boxes and tyres and safety belts for when we crash them. We have learned that we can't drink alcohol and steer them as well as we do without alcohol, we have learned to slow down at sharp corners and we have learned - most of us - how to dodge pedestrians and they - some of them - are learning how to dodge cars. We have so adapted the original car to meet our needs that today many of us regard it as an essential part of modern living. We therefore make certain that our children learn about cars, learn how to use them, and we often help them select their first one.

Today, that time frame has changed dramatically. Technological advances are coming so quickly that there is no longer the time to adjust to and learn about a machine or a piece of equipment that there used to be. While we are adapting or making a mistake with a piece of technology today it is already being replaced by something smaller or faster or cheaper or more versatile. I invite you to think of the first huge calculators of our generation and the ones some of you now have built into your watches.

The speed of change is unlikely to slow down. Some of the reading I have done suggests in fact that even the little time we do have now to adjust to new technologies will go.

For education, therefore, the speed of change is the new challenge. To meet it we must place much more emphasis on children's ability to think and to be flexible and versatile in their approach to life. Above all else they must, in the years of their formal education, be equipped with the skills they will need for the further learning they will have to do throughout their lives. Education must truly become the door to adult life. If we ignore the implications for learning which the speed of change holds, then education will be not a door but instead a stumbling block. And for so many girls in school today, the door won't even open.

What then does technology have to do with girls and women in our struggle for equality and status?

First, technology can help women to improve their lives. It can save them time and drudgery in paid or unpaid work. It can give them better hygiene and better health. It can provide incomes by enabling them to work at home at times to suit themselves. It can give them access to knowledge and training in new skills. All of these benefits of technology would add to women's rights and status.

But, secondly, those same benefits often turn out to be harmful to women. The technology which could save us time and drudgery is accompanied by other technologies which take up more time and are equally burdensome. The washing machine takes as long today to do the family wash as the old boiler took because fabric technology has become more complex and because new technologies in work have required us to have many more different kinds of clothing.

The technologies which can help our health are certainly a benefit to women - except that we have seen in our lifetimes experimentation on women with contraceptive devices and pregnancy pills that suggests some at least of these technologies are criminally disregardful of women's health.

Technology may help a woman to earn money while at home but that same technology imprisons her there as well. She becomes more isolated and bound to the home than ever before. Further any paid work which technology creates for women results in her carrying a double burden : the paid work and the unpaid housework. Technology has produced for too many women a guilt complex: they must take paid work to add to the family income so that today's technologies for family living can be bought and at the same time they have to look after their family as totally as families have been cared for by women in the past. They either work twice as hard or feel guilty that they aren't able to do both jobs well.

Technology does make it possible for women to gain knowledge and skills. But if there is no way in which women can use that knowledge or those skills then it merely underlines the inferior status society has given her. Today, technology is replacing people in many occupations. Often those who are displaced are women and they are left with no access to retraining for anything else.

Further, those jobs which technology is creating for women are still the second class ones where women carry out lower status routine work while their male colleagues hold the initiating and creating roles.

From these few examples it is easy to draw the conclusion that if technology is to add to the status of women there are two things which must be done.

First, technology must be appropriate for women's as well as men's needs. For the majority of today's rural women the chief needs are water and wood. Technology which makes these essentials of life easily accessible will be much more useful to them than the most sophisticated washing machine or stove.

Secondly, and as a consequence of the first point, technology must have women involved in it at all stages, from the planning of what is needed, to designing it, manufacturing, managing it, adapting and checking its safety. This means in essence that the users must control the technology and not the other way around.

How then do we get women involved in producing appropriate technology which will liberate them to equality with men? Schools have a crucial task in preparing young people for that ideal. And so I come to the challenges for education - the old new challenges about which I spoke earlier. And I begin with some questions for you. I work from two assumptions, (1) first, technology is here to stay; it will not go away. Therefore, (2) schools must educate for and with technology.

(1) How do we get the necessary technological resources into all our schools - and quickly - so that all students can learn about them?

(2) How do we get the necessary extra resources into schools to help the girls catch up with the boys in the fields of these new technologies?

(3) How do we overcome the learned reluctance of girls to become involved with technology?

(4) How do we prevent girls from opting out of the so called hard courses?

(5) How do we resolve the conflict between traditional cultural beliefs and practices and the objectives of equality so that girls come to school, stay at school and take advantage of all that schools offer?

(6) How do we resolve the conflict between the objectives of equality and the economic pressures on families which deny girls schooling because they have to join the paid workforce or have to work at home or in the fields?

(7) How do we balance the negative aspects of the other two major influences on young people (the family and the media, especially the visual media) both of which contribute to the attitudes about girls and women of which I have already spoken?

(8) How do we overcome the myth that teaching boys and girls in the same class or separately but in the same way, is giving girls equal opportunity in education when we all know that equal treatment of unequal people perpetuates those inequalities - and with technology, adds to them.

(9) How do we prevent the growth of a technological elite, most of whom will be urban men in developed nations?

(10) How do we re-write our school curricula so that girls as well as boys learn not only the uses of technology but also the dangers, so that the power technology has for exploitation will be recognized and avoided by women as well as men?

(11) How do we ensure that all girls as well as boys are educated to be versatile, literate, critical beings, able to keep on learning and able to maintain control over their life choices?

(12) How do we ensure that the technology in schools is what teachers want and students need?

There are, of course, many other questions but those will do to start with. I now suggest my responses to those questions, and as the challenges aren't new neither are my suggestions. The speed of change in technology has not yet come, in my experience, to education!

First, schools as formal learning institutions must be models of what they are encouraging students to learn. So, in terms of technology :

1. Schools must have all the soft and hardware teachers see as necessary and given by government grant. Theoretical learning was never adequate and never will be.

2. Schools must be given and must use for that purpose resources to help girls catch up technologically : staffing, in particular is vital.

3. The school's attitude to its girls must be such that extra time and resources are provided to overcome their reluctance, their opting out of technical courses and especially from technology.

4. This same attitude must take schools into their communities, to work with families to resolve the conflicts between education and culture so that girls will be able to benefit from schooling.

5. Schools must continue to teach that it is important for economic and all other forms of development for girls to be educated and that it is gross negligence to ignore the potential of girls to become more useful members of their nation than many can be today.

6. We as teachers must work to sabotage the negative conditioning children receive from their homes and the visual media so that they learn equality in its full sense.

7. Schools can prevent the growth of a technological elite of urban middle class men by teaching all children about technology so that girls and boys leave, not start, school equal in knowledge about the adult life they are joining, its resources and its dangers and the choices they have ahead of them.

There are some specific aspects of how a school should be a model of what it is teaching and some of these I remind you of, now.

1. All women teachers must be able to use the technology in the school.

2. All women teachers and all girls must use the available technology as part of their teaching and learning.

3. All girls must learn at least one non-traditional subject.

4. All subjects offered in a school must have access to and share the new technology. Too often it is kept in the mathematics and science classes.

5. All girls must be taught self esteem and self confidence and confidence with the new technologies.

6. All students must be taught to recognize stereotyping of the sexes and how to work against it.

7. All girls must be taught to recognize and to take up choices, opportunities which they traditionally have avoided or been denied.

8. All boys must be taught to share fairly home and child care decision-making and responsibilities.

9. All school resources must have sexist language and sex stereotyping removed.

10. All levels of formal education must have trained careers advisers to assist students, and girls especially, to consider non-traditional roles in life and to advise on the support available (especially financial) if such a role is chosen.

11. All students must learn that no matter how sophisticated the technology is or becomes, the worth of the individual

must remain more important in every aspect of living. Students must be taught, as part of this, to care for others.

12. All students must be taught that some of the worth of the individual lies with the ability to create beauty and harmony and lies with the skills of analysis and evaluation. So they must be taught these skills and they must be taught to read and write no matter how the printed symbol changes. If these skills are not taught then boys, and girls particularly, will become totally deskilled slaves to their society's technology.

But it is not only schools who have to become models. Our teachers associations must do the same and this is the other half of the old new challenges for education.

1. Women members must share decision-making and leadership roles at all levels of their association.

2. Our associations must work explicitly for better conditions and support services for women teachers and this includes training and retraining in the new technologies.

3. Our associations must keep up pressure on our governments to provide all the resources I have already listed to enable us to educate girls as well as boys properly.

4. Our associations must work for the removal of any discriminatory legislation to do with education or the community generally.

5. Our associations must ensure that there is a carefully planned monitoring of all association activities for their effects on women and to provide support for women members so that they are able to participate in those activities.

6. Associations should run awareness campaigns for the public (and for teachers) on the importance of educating girls, particularly for the technological future they face.

7. Associations must establish a data base about girls and women in schools and women in teacher associations. This data collection must be done systematically, for as the United Nations Decade for Women papers reveal, without correct, relevant evidence it is a much harder and slower process to persuade political leaders to change their spending priorities than it is with sound facts.

The work of teacher associations must support schools. In partnership they can change attitudes about girls and

women and improve their life choices. As far as technological education is concerned, teachers in teacher associations must fight to control the technology which comes into schools, must fight to control the way it is used and must fight to ensure that it is used for and by all students equally.

In conclusion, colleagues,

Forty years ago two significant events took place. I have already spoken of one : the founding of the United Nations. The other was one which people in Hiroshima and all over the world have recognized this week. The new technologies of information and communication, of agriculture, of production, of the home, of leisure, must be seen against the backdrop of the new technologies of warfare. That is one technology which I do not advocate girls and women should join. They have suffered through the centuries, as much as and often more than men, from war and its consequences. What we need now are new technologies for peace. Girls and women certainly have a right to participation in that development.

In New Zealand this week we too remembered Hiroshima and Nagasaki 40 years ago and in this same week we have celebrated Conservation Week. This means we have remembered the responsibilities we all have to care for and protect the many other forms of life on this planet. We have also used the week to stress the need for solutions to the exploitation of the non-living resources of earth. It seems to me that Hiroshima Day and Conservation Week are a happy and necessary combination. Somehow we must conserve our greatest resource - people - and to do this we must remember Hiroshima every day, everywhere. Technology will play its part in the peaceful care of people, men and women, boys and girls providing we remember that the technology which produced the Hiroshima atrocities was produced by people, not machines. Technology itself is not the problem - the problem is the attitudes of people controlling it. So I come back to where I began.

Technology and its relationship with girls' and women's rights and status is in essence a matter of attitudes to and about girls and women and the consequent life choices they have. If we can change the attitudes and improve the life choices then all nations will enjoy the benefit of the talents and skills and contributions of women.

But let there be no misunderstanding. Girls and women must enjoy equal status in all things, including technology, not for what they can give. Girls and women must have equality in all things because any other status is a negation of a basic human right. The challenge for education is to ensure

that that human right is achieved in school attitudes and practices, and in the learning gained (rather than the teaching offered). The challenge for teachers is to be courageous enough to lead the way to equality for girls and women. No other group in society has the necessary strength, organisation or will. If we don't pick up this challenge no one else can. The life we pass on to those who will follow us must be one of peace, nation to nation and person to person, one of prosperity, nation with nation, person with person and it must be one of equal sharing of all that the world offers, nation with nation, person to person. Technology can help us or hurt us - it is up to us.

CHAPTER V

EFFECTS ON THE GOALS AND ACTIVITIES OF TEACHER ORGANISATIONS

Panel: Edna Tait, PPTA
Kiyoo Nakakoji, JTU
Shin-Bok Kim, KFEA

Edna Tait

1. I begin by asking each of us when we go home to look closely at our organisations. We should examine the structures, the practices and the attitudes of our organisations to see if they are meeting the needs of all members, women as well as men. I also ask each of us, as we carry out this exercise, to be very conscious of who it is who is deciding the answers. As far as these matters which affect women are concerned, women must be involved in the decision-making at all levels. The people affected by the decisions are the people who should be consulted and they are the people who should certainly participate in the decisions as to how to resolve any problems. When we began to ask questions about our organisation, the New Zealand Post Primary Teachers' Association, we found we had to rewrite our constitution to remove sexist language and we had to rewrite our teachers' code of ethics to remove other similar problems and our women members were very involved in both exercises.

As we examine our organisations there are questions we should ask about worries which have been drawn to our attention during this conference. The answers to these questions could have marked effects on the goals and activities of our organisations.

- What involvement have women, at all levels, in our decision-making and work generally?

- Are the women able to use the technology in our offices and do they have the same access to it as their male colleagues?

- What kinds of support, training and retraining are offered to members, and especially women members, in the use of the technologies in schools?

- What sort of example do our organisations offer to our members in our work for equality generally and for women's involvement with technology specifically?

- What sort of pressures are we placing on our governments to persuade them to provide the support they must give us, as we try to understand and work properly with technology in schools. Are we seeking the training and retraining we need with technology, are we insisting on the provision of resources which we see as appropriate to learning, are we trying to persuade our governments that we must be involved in all decisions about technology in schools? Further, are we working to have our governments remove any discriminatory legislation which affects schools particularly, or our society generally?

- Finally, what information do our organisations have about our women members and the girls and women in our schools? Have we a method of collecting relevant, accurate information about them?

2. My second point deals with a particular activity I believe we should undertake, if we are not already doing so. We should be undertaking publicity for teachers and our communities about the new technologies. We should be drawing attention to the benefits and the dangers of technology, the continuing need for girls to be educated and certainly to be educated in and about technology and we must make certain that teachers and communities know why it is important that we, the teachers, remain in control of the technology used in schools.

3. The next activity I suggest our organisations should undertake is one which is aimed at parents. We should be encouraging, supporting and showing how, schools can reach out to parents to explain what today's educational goals are, the place of technology in the learning process and the importance of girls as well as boys to be in school. We should, as teachers, be working to remove the fears about schools, to remove the barriers between schools and parents. Our organisations can lead in this activity by offering suggestions, for example, as to how schools can encourage parents to contribute to their children's formal learning. One way which I think is important is for teachers to go to the parents rather than expect parents to come to us.

4. My final point is also concerned with schools. We must make sure that our organisations support teachers in their work with technology. Teachers must be involved in decisions about the curriculum of and assessment methods used in schools. This is particularly important, as we have learned from this conference, when we are asked to introduce new technologies. We are the people working with the students and we carry the responsibility of protecting their learning interests.

annihilation of human beings. At the same time, the development of new technologies has brought about the over-exploitation of natural resources, and the destruction and contamination of the natural environment. Therefore, it is the urgent duty of teacher organisations to prevent new technologies from being used for the destruction of human life and dignity, as well as to help the young generation understand correctly the use of new technologies in terms of respect for human beings.

It is also extremely important that the recognition of the dangerous aspects of new technologies -- not only their potential use for war and exploitation, but the risk of alienation of labour -- should be included in education programmes.

From these basic viewpoints, I think that teacher organisations have greater roles to play in various fields. Based on our experiences in Japan, I would like to stress the following two points.

In the first place, as was clarified through our discussions, teacher organisations, no matter how different the conditions of each country are, should be associated with the determination of policy at all educational levels. As President Killeen stated in his speech at the opening session, it is quite relevant that the ILO/Unesco Recommendation concerning the Status of Teachers advocates the need of consultation of teacher organisations in the determination of educational policy.

Unfortunately, such an opportunity is not fully guaranteed in Japan. Now in Japan, the government and financial circles jointly promote an "educational reform" which does not respond to the needs of classroom teachers and parents. Contrary-wise, the "reform" aims at the preparation of a handful of super-elites and at the revival of nationalism. Any educational reform should be promoted with the participation of representatives from teacher organisations and with respect for the demands of teacher organisations. Therefore, I would like to stress the significance of the participation of teacher organisations in the determination of policy.

For that purpose, it is important that teacher organisations organize voluntary educational research activities. The Japan Teachers' Union has promoted voluntary research activities for more than 30 years and held the National Assembly for Educational Research every year. At one group session of the Assembly, research has been started on education and new technologies. It is also important that teacher organisations have their own educational policy. With the support of the people, and in particular of parents, teacher organisations should

Our teachers' organisations must be vigilant in the guidance of teachers in these matters. I agree with the stress placed by Mr. Perera and Mr. Donde on the need to retain the human and critical elements of the education of students and this could mean our organisations have to fight for these elements to be explicitly protected from technological distortion. Technology could become the controller of our schools: our organisations must ensure that its potential tyranny is never realized.

Colleagues, we come to conferences and say many fine things. Too often we meet again and we find that very little has changed. I offer, therefore, a challenge for all of us. When we meet in two years time, let each of our organisations have two items of progress to report. These items may concern technology, they may be in terms of either the goals or the activities of our association. I would hope that they have involved women members and I would hope that they have improved the status of girls and women in education. I wish all of our organisations success in the work we undertake for the benefit of all teachers and all students.

Kiyoo Nakakoji

I think we may have confirmed our basic views on education and the new technologies through the discussions for the last three days.

Firstly, it has been clarified that humanity has developed its abilities in its long history by working for and changing the natural environment. At present, the realization of a high information society is on the agenda, and high technologies including computers, electronics, life-science, etc. have been developed remarkably. Such a development of technologies has greatly affected society and the education system as a whole.

In order to react positively to the changes, schools and teacher organisations have to strengthen their efforts to enable education systems and teachers to accomplish their responsibilities as pointed out in Points for Discussion: (a) to provide knowledge and skills of a kind which will be useful to a future worker, (b) to help young people to understand the changes which technology is bringing and (c) to give equal opportunities to as many young people as possible to acquire the necessary knowledge and skill.

Secondly, it is important to make young people recognize the danger of misuse and abuse of new technologies. A large-scale development of high technologies, such as the development of atomic energy, and the exploitation of space and the sea, may be utilized for warfare which will inevitably lead to the

exert pressure on governments to adopt the policy of teacher organisations. In the case of our organisation, we think it most urgently needed to press the government for the reduction of the maximum class size to 35, a guarantee for voluntary and independent research activities and implementation of teacher training and retraining in consultation with teacher organisations.

With regard to the introduction of teaching machineries and tools, teacher organisations should not allow any arbitrary behaviour of businesses which pursue their profits by selling those machineries and tools. In Japan, the reduction of public education expenditure has been promoted under the pretext of administrative reform. Teacher organisations should not support any move to dissolve public education.

In the second place, I would like to underline that teacher organisations should further promote education for peace in connection with the new technologies. The development of technologies has brought about the threat of a nuclear war. Since 1951, the Japan Teachers' Union has promoted education for peace with the slogan, "Never Send Again Our Children to the Battlefield!" However different the conditions of each country are, I should like to call upon every teacher organisation in this region to take the lead in the movement to defend peace.

Shin-Bok Kim

I would like to begin my presentation by quoting the Constitution of the Korean Federation of Education Associations (KFEA). The organisation defines its goals in Article 3 as follows:

> "The federation aims to contribute to promoting educational development by means of facilitating cooperation among the members, promoting the socio-economic status of teachers, and enhancing the professionality of teaching."

In pursuing these or similar goals, as far as I understand, all the other teacher organisations in the region as well as KFEA have conducted various activities in the context of the special situations and needs of their respective countries. In a broad sense, this regional conference is also seeking to contribute to these purposes.

As you well know, the theme of this conference is to explore what effects the development of technology has upon education and how the new technology can be used effectively in the educational process. During the last three days of

conference, numerous valuable opinions were presented based on the insightful papers dealing with the three respective topics. Now I am going to discuss what are the effects of technological development upon the goals of teacher organisations and what can be and should be done by the organisations to realize their goals.

Firstly, teacher organisations have to encourage the adoption and utilization of the new technology in education through active participation in the process of policy making and implementation, and also the teacher organisation should conduct continuous research and follow-up monitoring concerning the process of diffusion of the new technology. First, teacher organisations have to contribute to eliminating possible anxiety and resistence of teachers and educational administrators, which may be aroused against the adoption of the new technology. As Dr. Se-Ho Shin precisely indicated in his paper, students and teachers may be passive or apathetic towards the application of new technology in the teaching process, mainly because they need to adjust to a new way of learning and they may have to bear new burdens. Some teachers might oppose or resist the change of instruction methods.

However, in most developing countries, including the nations in the Asian and South Pacific region, the adoption and utilization of the new technology in education seems to be not only inevitable, but also desirable for improving the quality of and efficiency of education. Teacher organisations are expected to play an important role in changing the attitudes of teachers towards a positive one concerning the adoption of new educational technology.

In addition, teacher organisations have to give proper advice and exercise appropriate influence in the process of selecting the new educational technology and of deciding its pattern of application. Many delegates at this conference have pointed out that value problems are involved in the import of the new technology from other countries. Thus when we adopt advanced technology, we have to make a deliberate decision in consideration of particular situations and cultural traditions of the respective countries. The adoption of new technology should not be the channel through which the values and culture of developed countries spoil the traditional virtues of developing countries. Especially, since education has a dominant influence over the value systems and the way of thinking of the next generation, the teacher organisation has to play a critical role in the process of policy making for importing the new educational technology, based on thorough analysis of anticipated influences.

In addition, proper attention should be paid to the impact of new technology upon equality. Some technology may be applicable only when some necessary conditions and supports are available. Thus adoption of such technology may increase the gap between schools or between regions. As another example, some technology tends to be reserved only for male teachers and no chance of training may be given to female teachers. Such discrimination will obviously increase the inequality between men and women. From this viewpoint, the teacher organisation must scrutinize the decisions for adoption and application of the new technology, and if necessary, should not hesitate to urge corrective actions by the authorities concerned.

Secondly, recognizing the fact that the most important goal of a teacher organisation is to protect the rights of teachers and to promote their interests, the organisation has to analyse probable negative effects of the new technology on the socio-economic status of teachers and must cope with the problem vigorously. Let me explain the possible situation in a more detailed manner. When we introduce new technology in classrooms, significant changes can be brought to the role and burden of the teachers. The chance for personal contact between the teacher and the students could be considerably reduced and it may change students' perceptions of the role of teachers and also people's image of teachers. The change will have an influence on the social and mental status of teachers. In addition, the adoption of new educational technology may result in increasing the workload of teachers in preparing and operating the equipment and facilities. Furthermore, the teachers may have to bear a heavier responsibility for taking charge of the expensive equipment. Teachers' organisations should take into account these kinds of side effects and establish relevant countermeasures in order to prevent any decline of the status of the teaching profession and to protect the teachers from unreasonable increase of workload. It is desirable at first to conduct an intensive research on how the new model of instruction, adopting advanced educational technology, will affect the role and status of teachers. The findings of research will indicate the course of actions to be taken by the teacher organisation. One of the necessary measures for adopting a complicated set of educational equipment will be to secure qualified technicians who can maintain the equipment so that the workload of teachers will not increase.

As a further step, the teacher organisation is expected to accelerate the promotion of working conditions for teachers and the improvement of the job of teaching itself in parallel with the trend of technology development. The innovation of industrial technology brings about a remarkable improvement in working environments, and a decrease of working hours, in almost all occupations. Thus we discussed the problem of education

for leisure intensively during the first day of this conference. It is obvious that exception to this kind of change cannot be allowed to occur only in the case of teaching. Preferably it is natural that the teaching profession leads the trends. This means that we have to make continuous efforts to improve the working environment of schools and to shorten the working hours of teachers, keeping pace with the movement of other occupations in the industrial sector. The teaching profession should also transform its nature from labour-intensive activities toward capital-intensive or technology-intensive activities.

In short, teacher organisations are required to give top priority in their activities to the improvement of working conditions of teachers in parallel with the trend of technology development, since this is the most important task of the teacher organisation.

Thirdly, teacher organisations have to contribute actively to enhancing the quality and professional ability of teachers by means of helping them acquire the application skills of new educational technology. As I pointed out in my quotation at the beginning, the enhancement of teachers' professional ability is one of the most important goals of a teachers' organisation. Since the task of adopting and utilizing advanced technology in education is unavoidable, a necessary prerequisite task will be cultivating the teacher's ability to understand it correctly and to apply it effectively.

We can enhance such abilities of teachers mainly be means of two channels. One is education and training for teachers. Recognizing the importance of teacher education, almost all governments maintain pre-service education systems and regular in-service training programmes for teachers. But teacher organisations can share a part of the retraining programme either by delegation from the government or by their own initiatives. If teacher organisations establish and operate training programmes in relation to adopting new educational technology, I believe these will be welcomed and appreciated both by the government and by teachers. The other channel would be to provide teachers with relevant information to help them utilize new technology in education effectively. Such information includes theoretical documents, practical materials on newly developed educational technology, and actual cases of application. It is not surprising to find that in reality teachers and school administrators as well as policy makers fail to grasp the recent trend of educational technology development. I think teacher organisations can contribute a great deal to introducing up-to-date information on educational applications of new technology, in collaboration with teacher organisations in developed countries. In addition a teacher organisation can facilitate information exchange among its members by disseminating the vivid

experiences and findings of cases where some teachers have already developed and applied new educational technology in actual school situations.

In this connection, I would like to conclude my presentation by introducing the activities conducted by KFEA. Since 1952 KFEA has annually held a National Educational Research Convention where excellent research projects carried out by teachers are presented. These have been selected through a series of thorough evaluation at three levels of hot competition, that is, county level, province level and central level. Selected teachers who conducted outstanding research get special benefits in promotion as well as honourable prizes. The point I wish to emphasize here is that a considerable number of research projects are concerned with actual cases of developing and applying new educational technology in schools. Since the results of selected research have been published and disseminated on nation-wide scale, the research conference has contributed a great deal to the purpose of information exchange on educational technology.

As another effort to facilitate the diffusion of new educational technology, KFEA established the Center for Instructional Media Production in 1970. The Center has developed and produced various kinds of new equipment for instruction, especially audio-visual aids. After several years the Center was transformed into an independent corporation, and has held a National Teaching Aids Exhibition Meeting every year. I think these kinds of activities show a typical example of how a teacher organisation as a body of professional workers can play a leading role in adopting new technology in education.

CHAPTER VI

CLOSING CEREMONY

SUMMATION

Graham Marshall, ATF

Education and the New Technologies : Implications for Teachers and their Organisation

I came to this conference a little confused about this subject of technology. I believe I will leave this conference still confused about technology, but a little more confident about what needs to be done about the confusion.

For I have concluded from this conference that technology is not really about computers, robots, lasers, and warfare in space. These after all are simply examples of contemporary technology.

No, I have come to see during this conference that in talking about technology we are talking about something else -- we are in fact using technology as a synonym for change. In talking about technology we have been talking about change -- and not just change itself but the rate of change.

Indeed what is unique about the 1980s for teachers is that they not only have to cope personally with such an enormous rate of change in their own lives but they have to be able to provide some guidance to their students and often the wider community about these changes.

In coming to this view, I was struck by what I saw as the central themes of the three keynote speakers -- Mr. Horace Perera, Dr. Shin and Ms. Edna Tait.

Horace Perera was most explicit. He talked about technology in the content of massive and sweeping changes.

In fact it is worth quoting his conclusions again:

> "High level technology has come to stay. Its introduction and use have to be carefully thought out and planned in view of the 'violence' it can cause to employment, the environment and society."

"All our countries are facing, in various degrees, the demands of social and technological change. It will affect each one of us differently, according to the circumstances of culture, economic situation and social pressure. The inescapable fact is that it will affect us. The question for all of us therefore is not whether we need to respond to change but in what manner and how soon we will respond to it."

Dr. Shin responded to this challenge by pointing out that with any massive change there arise a great many social and moral issues. He raised for us the issue of "appropriateness" of technology.

In other words, technological change, like any change, requires decisions to be made -- social decisions, political decisions, moral decisions, and educational decisions.

In all these decisions, as they relate to schooling, there are great and heavy responsibilities -- responsibilities in which teachers and their organisations must be involved.

Edna Tait took this issue further with her talk on "Technology and the Status of Women". Edna's talk for me highlighted the dilemmas of change. As Giuseppe de Hompedusa noted in his novel "The Heoporel", some things need to change in order that things might stay the same.

In other words, great changes, including technological changes, may occur in our society only to leave the same old inequalities absolutely intact.

As I see it Edna was arguing that technological change can have three outcomes for women. It could worsen their situation, further exclude them from real power and participation in society. Or it could leave them pretty much where they are now. Or it could empower them and provide them with a more equal share in the political, social and economic benefits of society.

I take it she was arguing that schools, teachers, and teachers' organisations in particular can have a real impact on how change will affect women and girls.

We can start by changing the way we talk. We can move on to change our attitudes, then our policies, and most importantly our practice.

Of course as Edna said, the status of women is going to be affected as much by the education of men and boys as that of women and girls. It is as important for boys to do humanities as it is for girls to do science and technology.

Faced with the massive social and economic change which we have chosen to call technology, the conference has clearly pointed out what we must do.

1. Become strong and effective organisations (but this is not enough).

2. Assume responsibility for what is happening -- respond to the challenges of our speakers (but this is not enough either).

3. Become knowledgeable and expert about the economy, about appropriate technology, about educational issues -- develop policy, carry out research (still not enough).

4. Strive for equity and social justice in educational outcomes, in such matters as the status of women and girls, and in development issues.

5. Become influential, exercise responsibility.

6. Tackle the curriculum issue -- seek adaptative, flexible curriculum, with strong emphasis on general education, analytic skills, critical thinking.

7. Educate for leisure, with attention to the arts, music, sport and culture. A lot of Western entertainment is rubbish -- exploitative and wasteful.

This conference for me raises the question of what is a democratic, accessible, useful culture.

We need to break down the distinction between work and leisure, as artists have done through the ages.

I am reminded here of two highlights of Korean culture we have been fortunate enough to experience in the last week -- the Korean folk dances and the Korean Olympic Stadium. Both could provide for all young people the sort of cultural and leisure experiences which are useful and satisfying.

Finally, where does this conference head?

Firstly, some conclusions:

1. Rapid change, including social and technological change, inevitably brings the confusion I talked about early on. What we need is some self confidence and a strategy to handle that inevitable confusion. I believe I have gained some of that during this conference.

2. The real issues are the old ones -- equality and inequality, human values such as peace and sense of community, the need for careful analysis and critical thinking in ourselves and our students.

3. In handling technology and other change we need

   (a) good accurate information

   (b) a capacity to participate in decision-making.

Secondly, where do we go from here?

To make the conference worth while, we must go back to our own countries with a determination to identify and study the issues as they emerge in our various environments, to seek ways of implementing the recommendations adopted here, and, finally, report back to WCOTP on what we have achieved.

CLOSING ADDRESS

Il-Kyong Park, President, KFEA

Ladies and Gentlemen,

The Tenth WCOTP Asian and South Pacific Regional Conference has already come to a close. About 120 educators from 21 countries in Asia and the South Pacific got together and had serious discussions on the subject "Education and the New Technologies", which is our common task.

First, I would like to take this opportunity to pay a tribute to the distinguished delegates who have shown an exemplary manner as educators all through the sessions despite the sultry weather. I believe many issues were raised during the discussions, and at the same time, constructive agreements were reached for solving those issues.

Now, I would also like to express my sincere appreciation to President Killeen, Secretary General Goble, Mr. Mathews, Asian Representative, Mr. Nakakoji, Executive Committee Member, Ms. Tait, and Mr. Perera. We owe the success of this conference to their outstanding leadership and ability in managing the conference even though the arrangements were not fully satisfactory. My deep thanks also go to Secretary General of the KFEA, Soon-Dal Baek, and his excellent staff for their invaluable services rendered to make arrangements for this meeting, and pertinent authorities and institutions for their unreserved

administrative and financial support. Especially, the Minister of Education, Jae-Souk Sohn consented, without hesitation, to help some delegates get the Korean government's subsidies for their flight and sojourn.

Besides, the President of the Korean National Tourism Corporation kindly offered a Korean cultural show and a Sunday tour for the delegates. Without their help, this gathering could not have been successful. This conference once again brought home to me that we, educators, are always the members of one family transcending the differences of sex, race and ideology.

We held various useful debates on work and leisure, the educational technology, the status of women, the role of teachers' organisations and so on. But, we cannot deny that all these have led only to one conclusion: an effective education for our next generation.

For that reason, we should do our best to educate our next generation like water veins which make soil green without the knowledge of others. In addition, we should pool our efforts to enhance our rights and interests.

It is my ardent hope that this occasion has provided you with time to see the real picture of Korea and also, you have had a first-hand experience of warm Korean hospitality which we have been doing our utmost to show. At the same time, I am convinced that this conference proved to be a useful forum to exchange good ideas and information on various fields of education as well as to promote our common interests and friendship.

In closing, I sincerely hope that your stay in Korea will be remembered as a pleasant and rewarding one.

Wishing you good health and happiness, I must say goodbye now. Thank you.

FAREWELL ADDRESS

James W. Killeen, President, WCOTP

President Park, Colleagues,

Eight days have gone by very quickly since we came together to open this Tenth Asian and South Pacific Regional

Conference of WCOTP to discuss the Theme "Education and the New Technologies". In my opening remarks I said that we were here to look ahead at the challenges facing the countries of this region, to define the tasks which educators will have to undertake, to establish a clear picture of the responsibilities which will rest upon teachers, and to determine the kinds of resources, and the conditions of work which must be provided.

We have attacked most of those questions, and more, with our Non-Theme Resolutions dealing with such diverse issues as the rights of teachers in Vanuatu, the plight of the world's starving children, and women in teacher organisations, to mention only a few.

And now the acid test. Where will all these words lead us?? They will lead us absolutely nowhere if the thoughts and records of this conference are filed away at home and are not discussed in terms of national action, advocacy, and policy. This was a challenge extended to us yesterday morning by our panelists. We were also invited to try to improve the teachers' situation in terms of those two great enemies - time (to do the tasks expected) and numbers (of students). In dealing with the Resolutions which we have formulated in the past few days, we need real involvement and commitment. WCOTP will do its best to support and to advise our members as you deal with the issues discussed here.

We are greatly indebted to our friends and hosts, the KFEA, who have looked after us in splendid fashion. We have been wined, dined, "travelled" and "cultured" in a most thoughtful and marvellous manner.

Special thanks are due to :

the President of KFEA, Dr. Il-Kyong Park;
the Secretary General, Dr. Soon-Dal Baek;
the Deputy Secretary General, Mr. Se-Wan Sohn;
the International Relations Director, Mr. Tae-Jin Hur;
his assistants, Mr. Kwang-Sup Shim and Mr. Jae-Koo Woo;
the KFEA for a memorable tour and a delightful cultural show;
the JTU of Japan, the ATF of Australia, the NZEI of New Zealand and the SFL of Sweden for generous assistance with the cost of travel;
the interpreters - Japanese and Korean;
the support staff of the KFEA, who worked long hours with great devotion and efficiency.

A word on the matter of education and training of teachers, topics which are central to any adjustment of the educational system: teachers want to succeed and they want

their students to succeed. Teachers are subject to the most rigorous, most searching examination of their competence that can be imagined, every day, in the classroom. Teachers cannot conceal inadequate and ineffectual performance from their students or from themselves. Few conditions are more terrible than the fear and loneliness experienced by the inadequate teacher. It is an experience which drives most of the incompetent teachers out of the classroom at an early stage. Without help, others will be driven into survival strategies that are bad educational strategies and which provoke counter-strategies on the part of students that are bad learning strategies. The cure is not in the development of surveillance and testing. The cure is ensuring adequate preparation, involving sufficient exposure to the realities of the job to permit self-evaluation. The cure lies in training teachers for self-evaluation, and in providing the support of trained evaluators and consultants working with teachers, not against them. The cure must be found through collegiality, through teaming and mutual support, and through provision of time for reflection and analysis.

If technologies must serve education and not vice-versa, then the well trained teacher is the key and we must all address this need for first class pre-service and in-service training.

Once again, thanks to the KFEA for the manner in which this conference has been hosted.

Safe journey home to all, health and happiness.

CHAPTER VII

RESOLUTION ON THE THEME : EDUCATION AND THE NEW TECHNOLOGIES

I. This Tenth WCOTP Asian and South Pacific Regional Conference, assembled in Seoul, Republic of Korea, August 7 to 13, 1985:

Noting

that technological change is a reality which confronts all societies and education systems with a crisis of decision-making;

Convinced

that on the one hand technology, if wisely and constructively used, opens up limitless possibilities for economic development and human advancement, while on the other hand the abuse or misuse of technology could bring about a serious distortion of human values, damage the structures and relationships of society in ways which would irrevocably impair the quality of life, and even lead to the extinction of human society through the violence of nuclear war or the destruction of the physical environment; and

Declaring

that technology must be made to serve, and not allowed to dictate, the goals of education;

Resolves

1. to urge teachers to meet the challenge of educational change by

   (a) exercising a strong influence over the manner in which technology is used in schools and in which young people are taught about technology and its applications. Such an influence should ensure that teachers have control over matters such as computer software and school courses involving technology;

   (b) emphasising that the use of technology and the teaching about technology in schools involve matters of values as much as they involve technical expertise;

   (c) ensuring that while education is developed to meet the vocational needs of societies and their citizens, this is not done at the

expense of the humanizing elements of general education, such as analytical thought and critical skills. It is important that in learning about technology, pupils and students acquire the ability to exercise control over the technology they use, rather than be controlled by that technology;

(d) seeking to bring about the development and adoption of curricula for family life education and civics education which will help young people to be enlightened and discerning users of technology and consumers of its products, to be aware of and guard against possible threats to health and safety, and to make rational and responsible decisions regarding values, life styles and moral issues;

(e) ensuring that in the use of technology in schools, students are given equality of access to the educational benefits of such technology.

2. that teachers should work to use technologies in schools to promote the greatest possible equality in educational outcomes, rather than allow such technologies to increase disparities in outcomes.

II. The Conference further declares that:

1. The application of technology to education must be considered as a whole process which includes the identification of needs and the choice of appropriate aids and methods to assist educators to teach and students to learn more effectively.

Teachers and their organisations must be actively involved in all stages of that process.

2. The choice of technologies, and decisions as to their appropriateness for adoption and application in the educational process, will vary from country to country, and must be made after careful consideration of all relevant technical, material and cultural factors.

3. It is further recognized that the provision of appropriate training and re-training for all teachers is an essential prerequisite in the adoption and application of the new technologies.

III. The Conference,

Observing that although laws have been enacted in some countries to abolish discrimination against women, the persistence of custom, cultural tradition and inherited attitudes continues to place women at a severe disadvantage economically and educationally;

Noting that the force of these attitudes and customs continues to make it very difficult for women to find secure and satisfying employment in many fields or to rise to levels of responsibility or authority in the work force or in society;

Observing also that the introduction of new technologies, requiring educational qualifications of a kind which, traditionally, have been obtained by boys and men rather than by girls or women, creates additional problems in these respects;

Urges

1. that the shaping of the attitudes of both sexes towards the roles and occupations of men and women, and towards the educational choices of girls and boys, men and women, in such a manner as to favour and promote equality, be a major goal of schools;

2. that procedures and programmes in schools, including guidance and counselling services be so organized as to encourage girls and boys to choose fields of study other than those dictated by custom and tradition;

3. that every effort be made, in all respects, to eliminate sexist bias from the curriculum, and to make sure that pre-service and in-service education programmes deal adequately with this topic;

4. that women teachers be encouraged and assisted to become qualified in the use of technological devices in their teaching, and in the teaching of technology, so that they can provide role models to girls and women;

5. that economic and social independence for girls be established as a major goal of education systems, to be pursued through the education of both girls and boys in all areas of learning, including the acquisition of skills needed for careers in technology or in occupations requiring the use of technology.

6. that teacher organisations endeavour

   (a) to persuade employers to recognize the persistence of discrimination against women, and to compensate for it by making conscious efforts to provide opportunities for employment and promotion of suitably qualified women;

   (b) to work with parents to ensure the fullest cooperation in pursuing the goal of equality for girls in education and through education;

   (c) to press for legislation to protect women against all forms of discrimination and, where such legislation exists, to exert pressure to ensure compliance with it, and to assist members whose rights are infringed upon;

   (d) within their own ranks, to adopt policies, electoral practices and programmes, including training programmes, which encourage women to participate in decision-making at all levels;

   (e) to conduct, and press governments to undertake, programmes of public information and informal education designed to acquaint women with their rights, combat stereotypes and eliminate exploitation.

   (f) to work with and support other relevant groups to improve the physical conditions of women working with technology.

7. that teachers and their organisations recognize, and seek to convince governments, employers and the general public, through their publications, conference activities and all possible channels of communication:

   (a) that merely treating everyone equally will not produce equality of outcomes: differences in the previous life patterns of men and women, girls and boys, and the influences operating in different cultural groups, must be taken into account ;

   (b) that women and girls should be involved in decision-making at all levels of the educational process and of education systems;

   (c) that the goal of equality for women and men in a technological society must be pursued

through careful investigation of the particular educational procedures best suited to the needs of girls and boys, and the application of whatever special measures are found to be necessary.

IV. The Conference, recognizing:

that technology can improve and enrich the learning process;

that technological change can dislocate cultural systems and worsen the disadvantage experienced by women, the poor and some ethnic minorities;

that curriculum balance can be disturbed by the influence of industrial, commercial or specific interest groups and that the introduction of technology into the school may be determined by reasons other than educational appropriateness;

that the mental and physical health of teachers and students may be put at risk by the hasty or incautious adoption of new devices and new methods, in response to pressure for technological change; and

that the world environment is at risk at this time through despoliation and its ultimate obscenity -- war;

calls upon all WCOTP member organisations:

1. to ensure the maintenance of the cultural identity and integrity of all students and teachers while working for the removal of disadvantage;

2. to insist that the curriculum respond in a well-balanced manner to the needs of children and young people across a wide range of social, emotional, academic and cultural considerations;

3. to evaluate rigorously all curriculum change, particularly in respect to the introduction of technology;

4. to evaluate rigorously all hardware introduced into the school system to ensure that it is ergonomically suitable for use with the age group for which it is provided;

5. to work for improved pre-service and in-service training with appropriate assistance, release arrangements and study concessions;

6. to work for appropriate measures to protect the physical and emotional well-being of students and teachers;

7. to communicate with the community, particularly parents, on all aspects of educational development, and to heed the consensus of opinions so received;

8. to adopt measures within their organisations and schools to ensure the adoption of practices which promote equality in the various ways referred to in this resolution;

9. to communicate to teacher educators the urgency of helping both men and women to understand and appreciate the changing role of women;

10. to oppose the exploitation of educational systems by commercial interests which may press for the inappropriate adoption of technology in order to create a profitable market;

11. to oppose the despoliation of the environment whether it be by pollution or the exhaustion of natural resources, or by the ultimate obscenity of war;

12. to constantly demonstrate through example and precept the centrality of teacher-pupil interaction, regardless of the technological context;

13. to insist that adequate human and material resources be provided to ensure that teachers are able to maintain effective interaction with their pupils and students.

V. Finally, the Conference:

1. emphasizes the responsibilities which rest upon teachers and their organisations. Schools and teacher organisations, in their structures, practices and attitudes, should be models of what they are encouraging students to learn;

2. requests WCOTP to do everything possible to assist member organisations to exchange information and ideas to help bring about a more effective use of the new technologies in education, and to take the initiative in disseminating appropriate research findings.

Adopted unanimously

PROGRAMME

Theme : Education and the New Technologies : Implications for Teachers and their Organisations

Wednesday, August 7, 1985

09.00-16.00 Arrival and Registration of participants, Sheraton Walker Hill Hotel

Morning Conference Committee Meeting with representatives of WCOTP and KFEA

16.00-17.00 Preliminary Session

Orientation and briefing of participants

Norman M. Goble, Secretary General, WCOTP
Aloysius Mathews, Regional Representative, WCOTP
Soon-Dal Baek, Secretary General, KFEA

17.30-18.30 Opening Ceremony

Chair: Norman M. Goble, Secretary General, WCOTP
Speakers: Il-Kyong Park, President, KFEA
James W. Killeen, President, WCOTP
Jae-Souk Sohn, the Hon. Minister of Education, Republic of Korea

18.30-18.50 Multi-vision film show "Korea, Living Treasure"

19.00 Reception by the Korean Federation of Education Associations (KFEA)

Thursday, August 8, 1985

Changes in the Nature of Work and Leisure : their effects on the goals of education

09.00-10.30 First Plenary Session

Chair: Young-Ki Park, Advisory Committee Member for International Relations of KFEA
Speaker: L.H. Horace Perera, Honorary President World Federation of United Nations Associations (Former Special Assistant for Asia and the South Pacific, WCOTP)

10.30-11.00 Refreshments

11.00-12.30 First session of working groups

14.00-15.30 Second session of working groups

15.30-16.00 Refreshments

16.00-17.30 Second Plenary Session

Reports from working groups

Chair: Young-Ki Park, Advisory Committee Member for International Relations, KFEA

17.30 Meeting of working group rapporteurs

Friday, August 9, 1985

Technology in Teaching and Learning : changes in the role of the teacher and in the skills required by teachers

09.00-10.30 Third Plenary Session

Chair: Adelisa A. Raymundo, Secretary General of NATOW, Former Executive Committee Member of WCOTP

Speaker: Se-Ho Shin, Ph.D., Vice President, Korean Educational Development Institute

10.30-11.00 Refreshments

11.00-12.30 Third session of working groups

14.00-15.30 Fourth session of working groups

15.30-16.00 Refreshments

16.00-17.30 Fourth Plenary Session

Reports from working groups

Chair: Adelisa A. Raymundo, Secretary General of NATOW, Former Executive Committee Member of WCOTP

17.30 Meeting of working group rapporteurs

19.00-21.00 Dinner by Minister of Education, Republic of Korea

Cultural Show

Saturday, August 10, 1985

Technology and the Status of Women : new challenges for education

09.00-10.30 Fifth Plenary Session

Chair: Kiyoo Nakakoji, Executive Committee Member, WCOTP
Speaker: Edna Tait, Executive Committee Member, WCOTP

10.30-11.00 Refreshments

11.00-12.30 Fifth session of working groups

14.00-15.30 Sixth session of working groups

15.30-16.00 Refreshments

16.00-17.30 Sixth Plenary Session

Reports from working groups

Chair: Kiyoo Nakakoji, Executive Committee Member, WCOTP

17.30-18.30 Meeting of working group rapporteurs

18.30-20.00 Meeting of Resolutions Committee

Sunday, August 11, 1985

08.50-18.30 Excursion for all participants offered by Korea National Tourism Corporation

Monday, August 12, 1985

Effects on the goals and activities of teacher organisations

09.00-10.30 Seventh Plenary Session

Chair: Arun M. Donde, Advisor, All India Primary Teachers' Federation
Panel: Edna Tait, Executive Committee Member, WCOTP
Kiyoo Nakakoji, Executive Committee Member, WCOTP
Shin-Bok Kim, Advisory Committee Member, KFEA

10.30-11.00 Refreshments

11.00-12.30	Seventh session of working groups
14.00-15.30	Eighth session of working groups
15.30-16.00	Refreshments
16.00-17.15	Eighth Plenary Session Reports from working groups Chair: Arun M. Donde, Advisor, All India Primary Teachers' Federation
17.15-17.30	Film "Seoul 1988"
17.30	Meeting of working group rapporteurs

Tuesday, August 13, 1985

09.00-10.30	Ninth Plenary Session Chair: Norman M. Goble, Secretary General, WCOTP Topic: Discussion of Draft Resolutions
10.30-11.00	Refreshments
11.00-12.30	Tenth Plenary Session Completion of Conference Business Presentation of Certificates
14.00-15.30	Closing Ceremony - Summation - Speeches of thanks and farewell Il-Kyong Park, President, KFEA James W. Killeen, President, WCOTP
16.00-18.00	Meeting of Asian and South Pacific Regional Council
19.00	Farewell Party hosted by KFEA

QUESTIONNAIRE ON THE THEME

Introductory Notes

(a) The purpose of this questionnaire is to collect opinions, not information. The answers will be used to provide a starting point for the discussions of the working groups at the Conference.

Each section consists of comments on the topic, followed by a request to you to make three statements about the reforms which are necessary in education, in the circumstances of your own country.

We ask you to make these statements as short and direct as possible. For example, one answer to Question One might be: "The level of literacy in rural areas must be raised." The discussions at the Conference will give you the opportunity to expand on your statements.

(b) The phrase "new technologies" is often taken to refer to developments based on computers and microprocessors. But on the one hand, new developments are occurring in other fields (notably microbiology) which may have even more far-reaching effects, and on the other hand, many countries are experiencing fundamental changes based on the widespread application of technologies which have been familiar in urban centres and in industrialized countries for several years. We suggest that you interpret the phrase as meaning any technological advance which is bringing important changes to traditional industries, ways of life, customs, beliefs or culture.

1. Changes in the Nature of Work and Leisure

(a) Since the stone age, technology has been changing the ways in which work is done. These changes are now occurring with extreme rapidity. They cause many traditional jobs to disappear, and create new ones.

For example, the introduction of farm machinery compels farmers to learn new skills, such as tractor driving and repairing. New ways of fertilizing crops and protecting them from disease make it more important to be able to read instructions and understand scientific principles. In offices, there have been constant changes ever since the telephone and the typewriter were invented. New technologies in preserving and packing food have changed the nature of marketing and transformed the job of the shop assistant. In manufacturing, the computer and the microprocessor are combining with new engineering technologies to revolutionise production methods.

Question One:

State three priorities for reform in education with a view to preparing young people better for entering the world of work.

(b) Technologies, especially in the fields of travel, communication, entertainment, housing, and home equipment, are changing the ways in which people live, their relationship with each other, their cultural values, and the way in which they spend leisure time. Attitudes towards parents and family life, towards religion, traditional morality, politics and social institutions are changing. Life styles, values and culture in all its aspects are influenced by exposure to books, radio, cinema and television, and now by new forms of electronic entertainment.

Question Two:

State three priorities for reform in education with a view to preparing young people better for their roles as responsible adults, citizens and parents.

2. Technology in Teaching and Learning

Technology, by making it necessary for people to acquire new knowledge and new skills, is making new demands upon education and affecting the role of the teacher. At the same time, the information technologies are offering new ways of learning and teaching. Schools cannot adapt successfully unless teachers are given the possibility of learning new ideas and new ways, included from the outset in the planning of new approaches, and given freedom to develop their own ideas.

Question Three:

Suggest three steps which you think must be taken to ensure success in introducing new technologies into teaching or learning and/or in bringing educational programmes into line with the new needs of the learning population.

3. Technology and the Status of Women

New technologies in the world of work will deeply affect the career choices open to women. Traditional attitudes have already been shown to be a barrier to the choice of technologically-oriented subjects at the school level, so that career choices are already more limited than they should be. The problems lie not only in the attitudes of girls and women, but also in the attitudes of men, as

employers, teachers, fellow-students and fellow-workers. Equality in educational opportunities, and the use of education to promote equality in the world of work and in society in general, may be even more difficult to achieve in the coming decade.

Question Four:

State three priorities for action by educators to promote equality of the sexes in education and in society, in the light of the challenges posed by the new technologies.

RESPONSES TO QUESTIONNAIRE

Name of Organisation . . . . . .

Question One

(a) . . . . . .
. . . . . .

(b) . . . . . .
. . . . . .

(c) . . . . . .
. . . . . .

Question Two

(a) . . . . . .
. . . . . .

(b) . . . . . .
. . . . . .

(c) . . . . . .

Question Three

(a) . . . . . .
. . . . . .

(b) . . . . . .
. . . . . .

(c) . . . . . .
. . . . . .

Question Four

(a) . . . . . .
. . . . . .

(b) . . . . . .
. . . . . .

(c) . . . . . .
. . . . . .

POINTS FOR DISCUSSION

(based on responses to the questionnaire)

Topic One : Changes in Work and Leisure : their effects on the goals of education

In preparing young people to enter the world of work, the education system has three major responsibilities:

(a) to provide knowledge and skills of a kind which will be useful to a future worker, in the light of the priorities set for economic development in the country concerned;

(b) to help young people to understand the world of work and the changes which technology is bringing to it. This must include an understanding of the constructive and creative possibilities of new technologies, and also of the moral and social questions raised by their introduction;

(c) to give equal opportunities to as many young people as possible to acquire the necessary knowledge and skill.

To achieve these goals, schools should provide appropriate mathematics and science courses, and teach the vocabulary of technology, from the primary level on. At a later stage, direct work experience should be provided. Schools must be equipped as generously as possible with up-to-date technical equipment. Theoretical studies should help young people to understand the nature of new technologies, and the ways in which they affect economic development, the nature of work, and the relationships between people and between the various groups in society. Career counselling must be available to all. The aim must be to help young people to become confident, self-reliant entrants to the world of work.

To prepare young people for their roles as responsible adults, citizens and parents, the school must seek effective methods of organising the study of moral values and goals, without imposing a sectarian code. Education must be concerned with life styles and civic responsibilities, and must foster cooperation, mutual consideration and respect for cultural differences. Young people should be taught that peoples and nations are interdependent, and encouraged to learn the languages of international communication.

Cultural, moral and civic education must take account of the influences to which young people are exposed (e.g. the media, commercial advertising) and should involve parents and the community as much as possible.

Extra-curricular activities should be organised in harmony with these principles.

Topic Two : Technology in Teaching and Learning

Through reform of pre-service and in-service teacher education must be a first priority. Teachers must have access to in-service courses which will make them familiar with the new priorities and new goals of education, and with the methodologies available for more effective teaching and learning.

Teacher education, and the development of new curricula for schools, must be supported by research, especially directed towards the impact of new technologies on the perceptions, attitudes and life styles of young people.

Technology in teaching and learning is only one part of curriculum, and must be developed within a general effort of curriculum reform. Older technologies - books and paper - must not be neglected or undervalued. There is a vital new role for the public library as a means of sustaining lifelong learning.

In all these measures, it is vital that teacher organisations participate fully in decision-making and planning at all levels.

Topic Three : Technology and the Status of Women

Technology must not be allowed to increase the disadvantages experienced by women and girls in work, education and social and cultural life. On the contrary, schools and education systems must strive to establish greater equality through measures such as the following:

(a) Educational authorities must make a clear and definite commitment to the elimination of sex-based discrimination, and must develop policies and programmes, in consultation with teacher organisations, to achieve this goal.

(b) Guidance and counselling procedures must be set up to encourage girls and boys to choose non-traditional courses and careers.

(c) Compulsory courses and work assignments must be provided to ensure that girls and boys are given a thorough and equal grounding in science and technology.

(d) Problems of sex-based discrimination should be studied as part of the school curriculum.

(e) Textbooks and other materials should be revised to exclude any element which contributes to sex-based discrimination.

(f) When technical equipment is available for use by pupils and students, its use should be monitored to ensure that girls have equal access to it.

(g) Segregation of classes should be eliminated.

(h) Parents should be urged to be aware of the ideas which are learned in early childhood, of the need to take remedial measures at that stage, and of the importance at all ages of attitudes in the home and family.

(i) Non-formal education should be vigorously developed in favour of women.

(j) Teacher organisations must work for the elimination of discrimination, not only through the voluntary action of employers and administrators, but through legislation and regulation in conformity with the Convention on the Elimination of All Forms of Discrimination Against Women.

NON-THEME RESOLUTIONS

Non-Theme Resolution 1

Situation in Vanuatu

(Proposed by the Australian Teachers' Federation)

The teacher organisations represented at the Tenth WCOTP Asian and South Pacific Regional Conference,

Noting that their fraternal colleagues of the Vanuatu Teachers' Union (VTU) are currently taking strike action to protest their concerns about low salary, low status and poor working conditions, and their particular concern about irrelevant curriculum reflecting former colonialist values;

Noting that the Government of Vanuatu has prior to this taken action against the VTU by withdrawing the salary of the VTU General Secretary and forcing transfers upon members of the VTU Executive;

Noting that the Government of Vanuatu, after having established a joint VTU-Education Ministry team to consider the validity of VTU salary claims, has now rejected its recommendations; and

Noting that the Government of Vanuatu has announced the dismissal of the striking teachers, is requiring them to reapply for their positions, has closed the schools from August 5th and is denying teachers access to radio services;

Jointly resolve

(a) to protest forthwith to the Government of Vanuatu and urge that it immediately re-employ all those teachers who were dismissed for striking and accept the recommendations of the joint negotiating team;

(b) to consider what forms of aid they can extend to the VTU;

(c) to ask the WCOTP Asian Council to convene without delay and to request the following action by the WCOTP Secretariat:

(i) Immediate transmission of a formal protest to the Government of Vanuatu on behalf of WCOTP;

(ii) Submission of a complaint, as a matter of urgency, to the Freedom of Association Branch of the ILO.

Adopted with no contrary vote
One abstention
Section (c) adopted by the
Asian Council

Non-Theme Resolution 2

Activities to save the lives of starving children

(Proposed by the Japan Teachers' Union)

Considering that there has been a tragic increase in the number of refugees in some developing countries in Africa and Asia due to the destruction of the natural environment, drought, flood and oppression based on racial discrimination, and that owing to malnutrition and its consequent deseases, the lives of a great number of young children have been lost or permanently damaged;

Noting that children are deprived of even their right to live as well as the right to education;

Recognizing that many United Nations agencies including Unicef, Unesco, WHO, UNHCR, etc. have been developing various activities to save the lives of these children;

That as teachers who are directly responsible for the education of children we cannot keep silent;

And also recalling the non-theme resolution adopted at the 30th WCOTP Delegates Assembly on this matter;

The Tenth WCOTP Asian and South Pacific Regional Conference calls upon all WCOTP member organisations in Asia and the South Pacific to develop all possible activities, including fund-raising campaigns, to promote awareness of these problems and action to alleviate them, as part of their work in favour of education for international understanding, human rights and peace.

Adopted unanimously

Non-Theme Resolution 3

Women in Teacher Organisations

(Proposed by the Post Primary Teachers' Association, New Zealand)

In line with the WCOTP Asian and South Pacific Regional Conference held in Wellington (1981) and Kuala Lumpur (1983), this Conference reaffirms the recommendations arising from those conferences which seek to promote the principle of equality of outcome.

This Conference,

Notes that Asian and South Pacific Unions and Associations of WCOTP recognize that while equality of opportunity for participation exists in all organisations, equality of outcome has still not been achieved;

and draws particular attention to the importance of points 1+2 of the Wellington conference resolution on "The Role of Women in Teachers' Organisations";

Recognizes that WCOTP has established a Women's Committee, which has begun to monitor progress and to investigate the establishment of a clearing house to exchange information on the achievement of equal opportunity and equal outcomes within organisations and to establish contact networks;

and that WCOTP has included within the proceedings of conferences issues which are of major concern to women members;

Calls on WCOTP to

1. Check regularly on progress being made in achieving involvement of women in each organisational structure and to include a report, with opportunity for discussion, on the progress being made at subsequent WCOTP world and regional meetings;

2. Encourage the development of an exchange programme for women association and union officials and women teachers amongst the Asian and South Pacific teacher organisations to help them to develop activities to increase women's participation in their unions and associations;

Recommends that teachers' organisations sending delegates to WCOTP meetings ensure that there is fair representation of women in their delegations;

Recommends that all unions and associations be asked to report to the next Asian and South Pacific WCOTP Conference about the initiatives and actions taken to achieve equality of outcomes in organisations;

Recommends that teachers' organisations in each country examine the need for special provisions to increase the participations of women at all levels in their respective organisations and within their education systems and take appropriate action;

In doing this, consideration be given to

- amending the constitution of teachers' organisations to ensure the participation of women at all levels of the decision-making structures, either by election or by cooption;
- arranging meetings at convenient times and deciding on a suitable length for such meetings;
- providing child-care facilities to make it possible for women teachers to participate in these meetings;
- electing and appointing women to staff positions;
- forming women's groups and establishing communication networks to encourage participation by women;
- informing members and the public (particularly partners of members) of the rights and responsibilities of teachers to participate in their organisations' activities;
- conducting a national needs survey to identify areas of need in relation to women members;
- establishing a monitoring and evaluation process for all these activities; and
- liaising with other women's organisations in their respective countries;

Requests WCOTP

1. to immediately conduct short seminars for women delegates, prior to the beginning of all conferences within the Asian and South Pacific Region, aimed at increasing the active participation of women in the conference;

2. to continue to include issues of concern to women members, as an integral part of the conference programme in future Asian and South Pacific Regional Conferences.

Adopted with no contrary vote
Four abstentions

Non-Theme Resolution 4

1. Nuclear Weapons
2. Independence of New Caledonia

(Proposed by the Australian Teachers' Federation)

The organisations attending the Tenth WCOTP Asian and South Pacific Regional Conference,

(a) Commend the Governments of New Zealand and Vanuatu on the policies they have adopted with respect to a nuclear-free Pacific;

(b) Request that the attached resolutions be submitted for consideration and decision by the Asian Council.

Adopted with no contrary vote.
Two abstentions.

Resolutions addressed to the Asian Council

1. Nuclear Weapons

(a) The Asian Council of WCOTP, consistent with decisions of the Assemblies of WCOTP on the issues of peace and disarmament, reaffirms its concern over the increasing militarization of the Pacific and Indian Ocean regions and the use of these regions for the testing of nuclear weaponry and systems.

(b) The Council supports the demand for a nuclear-free Pacific and Indian Ocean region. It calls upon all the governments of the regions to concur in this demand as a step towards reducing the level of armaments and international tension in the world.

(c) In particular:

1. The Council affirms that the testing of nuclear

weapons in the Pacific and Indian Ocean regions menaces the well-being and outrages the rights of the peoples of that area, and calls for the immediate cessation of all such tests.

2. The Council calls upon all governments to respect the sovereign right of states to declare their territories to be nuclear free, and to accept such declarations without threats or retaliatory measures.

(d) The Council requests that the Secretariat and Executive Committee of WCOTP bring this resolution to the immediate attention of member organisations in appropriate countries.

2. Independence of Kanaky (New Caledonia)

(a) The Asian Council of WCOTP recalls that the 1980 Assembly of Delegates declared that

"Teachers have a particular responsibility in the building of free and just societies"

and that the Assembly

"solemnly recalls the right of all people to take charge of their future freely";

(b) The Council believes that the completion of the process of decolonisation is an urgent priority in international affairs;

(c) The Council notes the commitment of WCOTP member organisations in France to the early achievement of the independence of Kanaky (New Caledonia);

(d) The Council calls for speedy action to bring about the independence of Kanaky on terms which fully respect the wishes and the rights of the Kanak people;

(e) The Council requests that the Secretariat and Executive Committee of WCOTP bring this resolution to the urgent attention of member organisations in France and seek their support in presenting it to the Government of France.

Adopted by the Asian Council

LIST OF PARTICIPANTS

AUSTRALIA

Australian Teachers' Federation

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